historic structure report
architectural data section
september 1983

BOSTON
CHARLESTOWN NAVY YARD
THE RAILROAD TRACKS

NATIONAL HISTORICAL PARK / MASSACHUSETTS

Prepared and published by the Denver Service Center

HISTORIC STRUCTURE REPORT
Architectural Data Section

THE RAILROAD TRACKS
CHARLESTOWN NAVY YARD
BOSTON NATIONAL HISTORICAL PARK
Charlestown, Massachusetts

Package No. 112

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U.S. Department of the Interior / National Park Service

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PREFACE

The following has been compiled from two reports: an architectural data section and a technical document prepared by consulting waterfront and structural engineers. Together they chronologically document track installations and modifications, document existing conditions, analyze existing conditions, proposes alternatives for repair and uses, and include preliminary cost estimates. The scope and intent of this report are outlined in a task directive approved in June of 1978.

Originally, extensive subsurface investigation was proposed to analyze existing conditions, but due to funding limitations and a relatively short projected shelf life it was decided to investigate without excavation. There exist areas that are not covered with paving, and, at those locations below grade investigation of the ballast, bed, and ties were possible. However, the balance of trackage was not investigated below grade. In that case, assumptions were formulated from known conditions as described in the report.

The railroad tracks, according to the General Management Plan (GMP) Volume II, February 1980, are to be considered structures of greatest historical significance. This is the most restrictive category which allows for only minimal alterations or modifications to historic fabric.

> All development actions shall be to preserve or restore a 1973 appearance. All details, finishes and materials, both interior and exterior shall be preserved in place and any repairs shall be through replacement in kind.

The GMP, also discusses "the preservation and development of the site" with the following of particular importance to the railroad tracks:

> All paved and planted areas of the Charlestown Navy Yard will be maintained in their 1973 appearance. Existing materials will be

retained to the maximum degree possible. All future repairs will be through replacement in kind, and any new development will be compatible with the surrounding detail.

A historic site report, documenting the development of the yard and its appearance through various periods of history, will be necessary to support future site development.

Asphalt paved areas throughout the yard will be maintained and patched as necessary. Traditionally, repairs have been made using various colored aggregates. This practice will be continued. Earlier pavement types, where exposed, will be preserved to demonstrate the continuum of pavement in the yard. Examples of this include yellow brick pavers on 3rd Street, wooden pavers on 4th Street, and granite and brick pavers on pier 1.

These guidelines and others outlined in the GMP, apply to all decisions regarding a selection of proposed alternatives.

Charlestown Navy Yard is listed in the National Register of Historic Places and all proposals affecting the railroad tracks are subject to the requirements of the Advisory Council on Historic Preservation's regulations, "Protection of Historic and Cultural Properties" (36 CFR Part 800) established in accordance with Section 106 of the National Historic Preservation Act of 1966 and Section 1 (3) and 2 (b) of Executive Order 11593. With the approved general management plan, section 106 compliance is completed through procedures associated with the programmatic memorandum of understanding.

The Cultural Resources Inventory, Potential Archeological Resources (Marie, March 1980) contains an inventory of potential archeological resources located below the surface of Charlestown Navy Yard. Implementation of any of the alternatives proposed which would involve subsurface disturbances should be preceded by specific research on the historic resources listed in the inventory. In accordance with Section 106 of the National Historic Preservation Act of 1966 and Executive Order

11593, archeological research must precede any proposed impacts to the site. Archeological tests may be necessary to verify the presence, evaluate the significance, and recommend the disposition of archeological remains in the areas where railroad tracks are located.

If during the course of work undocumented resources are uncovered, all further disruptive activities are to cease until archeological testing, the resource's significance is evaluated according to National Register criteria and Advisory Council procedures, the needs of the park, and priorities established for its development and cultural management and preservation policy are fully evaluated. This report contains no archeology data section.

A transportation study prepared by Richard E. Hangen and Associates, Inc. of Boston A/E, was completed in 1981. It deals primarily with how a visitor is to arrive at Charlestown Navy Yard and methods for traveling to other Boston NHP sites. Visitor movement within the Navy Yard is not addressed and no mention is made of the possible reuse of the railroad tracks. However, visitor transportation to the park and visitor movement within the park affect the existing railroad tracks and decisions based on the transportation study should be cross referenced with this report.

Documents included in the Bibliography should be referenced for a comprehensive overview of planned park development. Portions of the documents discussed in the introduction are not to be interpreted as a complete synoposis of all information pertaining to the railroad tracks.

Should additional information regarding the history of the resource be required, the reader should consult Edwin Bearss' "Account of the History of Charlestown Navy Yard."

I would like to thank Merrill Ann Wilson, DSC, who organized this project and who was A/E manager during the preparation of Alane Guitian's architectural data section. The engineering data was prepared by Childs Engineering Corp. and in particular Ronald R. Bourne and Bruce Tobiasson. The park prepared the administrative data section and the report incorporates regional and DSC review comments.

Scott Jacobs, DSC
October 1983

STATEMENT OF SIGNIFICANCE

The following are portions of a statement of significance formulated by NPS Historian Edwin Bearss as part of the draft "National Register of Historic Places Inventory--Nomination Form" for Charlestown Navy Yard

> Charlestown Navy Yard is nationally significant in illustrating the naval and industrial history of the United States. The shipyard's 174-year history and its buildings exemplify the industrial/technological revolution that established the United States as an industrial society and political world leader and the U.S. Navy as the world's greatest naval power. In addition, the yard has retained more of its architectural components--and hence its continuity--than any other major naval facility, and it therefore documents the full scope of this 174-year history.
>
> . . .
>
> Other elements at the yard, such as the railroad and crane tracks, are important too. Year after year, from the 1850s and until the mid-1860s, there were letters urging the extension of tracks into the yard. They placed a vital role during the yard's great years, until the facility began to depend on trucking in the 1950s.
>
> . . .
>
> The Charlestown Navy Yard today is essentially as it was in 1974, and its appearance that year in no way limits, but rather enhances, its ability to communicate the sweeping story of the development of the United States into an industrial giant that supports the greatest navy the world has ever seen.

The railroad tracks are an integral aspect of the Navy Yard's history without which a complete understanding of Navy Yard operations is not possible.

I. Administrative Data Section

A. Name and Number of Structure

The railroad tracks, Charlestown Navy Yard, Boston, Massachusetts, consist of about 6,300 linear feet of standard gauge track located primarily on piers 1 and 2, along 1st Avenue and extending out of the yard along Lincoln Avenue. The general management plan designates the tracks for preservation of the first order.

B. Proposed Use of Structure

The railroad tracks will be used as an exhibit in place for the display of Boston and Maine boxcars owned by the park and for the interpretation of the function of trains in the yard. The trackage may be occasionally used for local rail traffic. The tracks may also be used for the display and use of an Ohio railroad crane such as saw service in the Navy Yard for many years and as late as the 1970s.

C. Justification for Such Use

A railroad track system was originally installed and made operational in the yard about 1863; major changes were initiated in 1902 and 1937. The tracks, except that portion on pier 2 and miscellaneous spurs are connected to tracks of the Boston and Maine Railroad directly outside of the yard. The railroad track system played an essential role in the operation of the Navy Yard for nearly a century until the yard began to depend on trucking in the 1950s. Within the park boundaries, the tracks served the dry docks, coal storage structures, and the marine railway. They also held cars not in use. The standard gauge tracks shared a rail with crane tracks in places. The tracks are an integral part of the Navy Yard's history; without them a full understanding of yard operations is not possible.

D. Provisions for Operating Structure

The tracks will be maintained as they appeared in 1973.

E. Cooperative Agreement, if any, Executed or Proposed for Operating Structure

The park has no cooperative agreement on this structure.

F. Proposed Usage

The tracks are occasionally actively used for railcar movement and regularly used for display purposes. As the general management plan calls for the maintenance of the tracks in their 1973 configuration, a fully working system requiring the construction of additional track is precluded.

G. Estimated Cost of Proposed Construction Activity

No work is proposed at this time.

II. Architectural Data

A. Introduction

The railroad tracks at the Charlestown Navy Yard, Boston National Historical Park, are located on Piers 1 and 2, along 1st Avenue and extending out of the yard along Lincoln Avenue. There is approximately 1,000 lineal feet of track, with some rails serving a dual purpose as crane rails. The tracks have, for the most part, not been used since the yard was disestablished by the Navy in 1974, and the switches are now covered with metal plates which have either been sealed shut or are corroded shut. The connecting line out-side the yard is still in working order and belongs to the Boston and Maine Railroad.

The configuration of the track system has undergone extensive changes since it was originally installed at the yard in the 1860s. These changes, from 1866 to the present, are illustrated on the maps included in this report. The following historical background is primarily based on annual reports since there is very little other written material available on the railroad tracks at the Charlestown Navy Yard.

B. Historical Background

It is not definite when the first tracks were laid at the yard, but as early as 1856 it was recommended in the Boston Navy Yard annual report that tracks be laid connecting the most important points of the yard. At this time, horse car railroads were being used in most of the major cities and it was felt that they could also be adapted to the needs of the yard.[1] Action was not taken on the recommendation and the yard continued to propose and give estimates for a track system in the annual reports until 1859.

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1. Annual Report of the Boston Navy Yard, 1856, National Archives, Washington, D.C.

By 1863 tracks had been laid and "the first car was run over the Navy Yard Railroad."[2] Also in the same year, there was a proposal to build a connecting line with the Fitchburg Railroad since this company was in the process of extending their track to the Navy Yard gate.[3] It is unclear whether or not this connecting line was ever accomplished. But, from this time onward, there were continuing improvements and extensions made on the track system at the yard. Most of the improvements were minor until 1886, when it was felt that the tracks needed new sleepers and ballasting.[4] In 1891 the "railroad track was taken up and rebuilt from near the head of the dry dock to the yard entrance."[5]

Such rebuilding of the tracks continued until 1898, when it was recommended that a new railroad system be installed at the yard, and that a locomotive and cars be purchased.[6] It appears that up until this time, the yard was still using a horse car railroad, since the "present railroad is one with rails of an old fashioned flat section, which do not admit...the entrance of a locomotive to the yard."[7] Transportation in the yard was considered expensive and slow and that a modern railway system would allow the rolling stock of other railroads to enter.[8] It was estimated that a new railroad system would cost $40,000 and $10,000 for a

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2. George Preble, History of the Boston Navy Yard: 1797-1874, (located in the manuscript collection of the New England Historic and Genealogical Society), p. 415.

3. Report of the Secretary of the Navy, Washington, D.C., 1863, p. 617.

4. From Edwin Bearss' notes on the 1886 Annual Report of the Boston Navy Yard.

5. Ibid., 1891.

6. Report of the Secretary of the Navy, Washington, D.C., 1898, p. 218.

7. Ibid.

8. Ibid.

locomotive and ten gondola cars.[9] In 1899 Congress appropriated the funds for installing a modern railroad system.[10] During 1902 work had begun on the new railroad system and 3,200 linear feet of track were laid.[11] This was the first major overhaul of the track system. Until 1937 the only changes to the tracks were minor improvements, maintenance work, and extensions. Another locomotive was purchased in 1905,[12] and in 1910 new flat cars were also purchased.[13] According to a report of the public works of the Navy, the Navy Yard had a direct connection to the Boston and Marine Railroad outside the yard in 1916. And, even though there were two locomotives, the yard continued to use horses and mules.[14]

By using salvaged railroad tracks in 1937, a large portion of all of the tracks were overhauled and several extensions were laid.[15] After this period, the records are scarce in regard to the track system. In 1950 the transportation system of the yard included five diesel locomotives and numerous motor vehicles.[16]

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9. Ibid., p. 242.

10. Report of the Secretary of the Navy, Washington, D.C., 1899, p. 186.

11. Report of the Secretary of the Navy, Washington, D.C., 1902, p. 114.

12. Report of the Secretary of the Navy, Washington, D.C., 1905, p. 90.

13. Report of the Secretary of the Navy, Washington, D.C., 1910, p. 171.

14. Public Works of the Navy Bulletin, Washington, D.C., 1916, pp. 8-9.

15. Public Works of the Navy, Bulletin No. 38, Washington, D.C., 1937, p. 66.

16. The Boston Naval Shipyard News, Vol. 15, No. 2, August 14, 1950, pp. 4-5.

In a general survey of the track system in 1958 it was found that "practically every run of earth supported track required realignment, regrading [sic] or both;" any many of the switches which had not been operating for months or years would require considerable cleaning and freeing up before they could be operated.[17]

After 1958, any written material on the railroad track system at the Boston Navy Yard is either unavailable or nonexistent. For this reason, in tracing the structural development of the track system it is necessary to rely on the annual site plans of the Boston Navy Yard.

C. Structural Development

The sources for the following maps, showing the structural development and configuration of the railroad track system, are the annual site plans of the Boston Navy Yard. For some years, maps were not drawn and frequently it is not made clear whether the conditions noted are proposed or existing. This should be taken into consideration, if used for further research. These site plans are located in Building 136 in the Maintenance Department and their drawing numbers are noted below:

Before 1866	Railroad tracks proposed, but not laid.
1866	399 Sh 11
1867	399 Sh 12
1868	399 Sh 13
1869	399 Sh 14
1870	No site plan for this year.
1871	399 Sh 16
1872	399 Sh 17
1873	399 Sh 18
1874	399 Sh 19
1875	399 Sh 20
1876	399 Sh 21
1877	399 Sh 22
1878	399 Sh 23
1879	No site plan for this year.
1880-1899	Railroad tracks not noted.

17. MP&R Project No. 457 - Elimination of Railroad Trackage, 1958 (filed in the Maintenance Department of Boston Navy Yard).

1900	No site plan for this year.
1901	Site plan unclear.
1902	509 Sh 1
1903	599 Sh 48
1904	399 Sh 74
1905	399 Sh 75
1906	No drawing number.
1907	399 Sh 78
1908	399 Sh 80 (probably incorrectly numbered)
1909	399 Sh 80
1910	399 Sh 83
1911	399 Sh 85
1912	399 Sh 86
1913	399 Sh 87
1914	399 Sh 88
1915	399 Sh 89
1916	399 Sh 90
1917	399 Sh 92
1918	399 Sh 95
1919	399 Sh 96
1920	399 Sh 97
1921	399 Sh 98
1922	399 Sh 99
1923	399 Sh 100
1924	399 Sh 101
1925	399 Sh 102
1926	399 Sh 103
1927	399 Sh 104
1928	399 Sh 105
1929	399 Sh 106
1930	No site plan for this year.
1931	399 Sh 108
1932	399 Sh 109
1933	399 Sh 110
1934	399 Sh 111
1935	399 Sh 112
1936	Site plan unclear.
1937	399 Sh 114
1938	No site plan for this year.
1939	399 Sh 116
1940	399 Sh 117
1941	399 Sh 118
1942	No site plan for this year.
1943	399 Sh 119
1944	399 Sh 121
1945	No site plan for this year.
1946	399 Sh 123
1947	399 Sh 124
1948	399 Sh 125
1949	399 Sh 126
1950	No site plan for this year.
1951	399 Sh 128

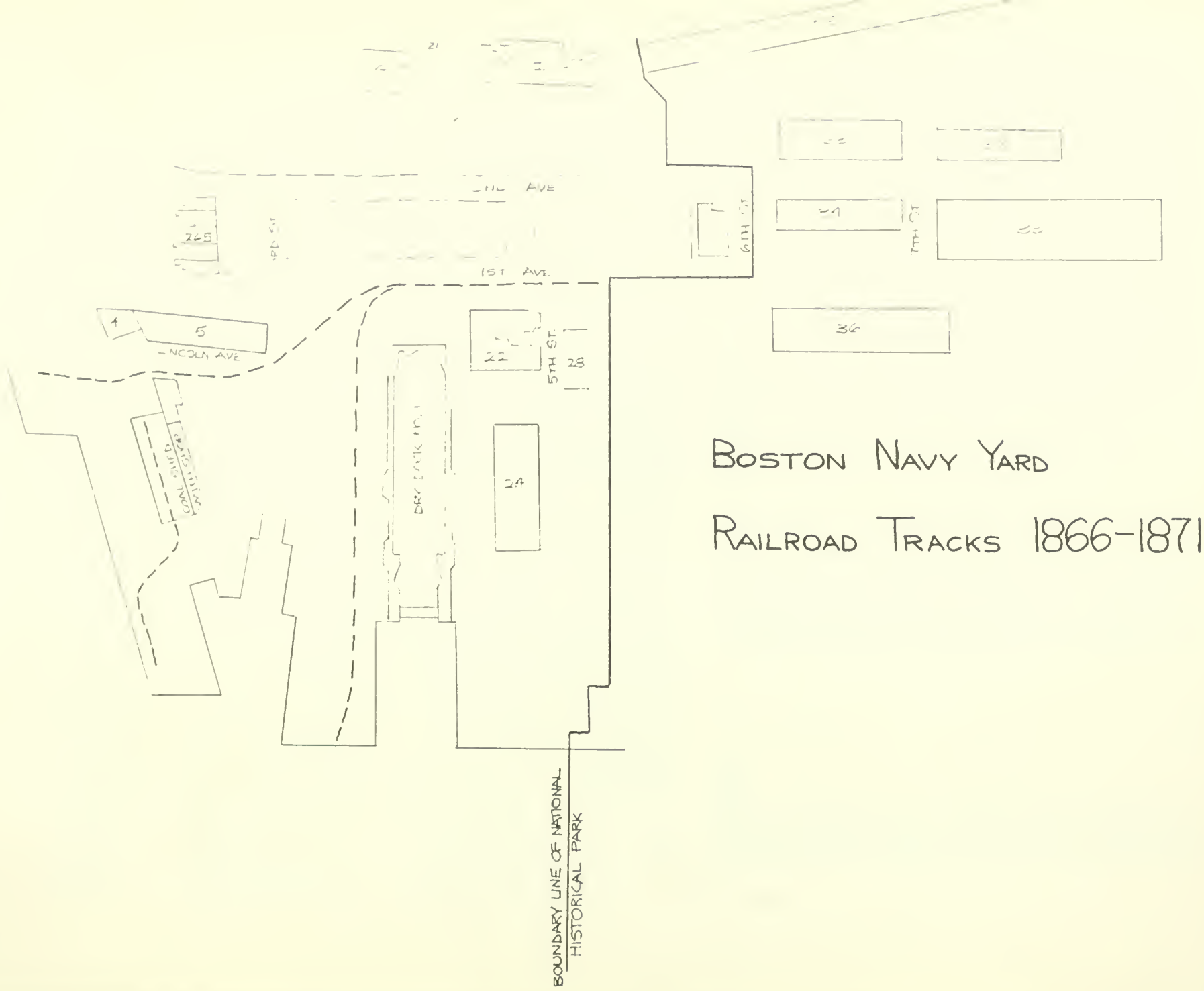
1952	No site plan for this year.
1953	399 Sh 130
1954	399 Sh 131
1955	399 Sh 132
1956	399 Sh 133
1957	399 Sh 134
1958	399 Sh 135
1959	399 Sh 137
1960	399 Sh 141
1961	399 Sh 143
1962	No site plan for this year.
1963	399 Sh 144
1964	399 Sh 146
1965	399 Sh 147
1966	399 Sh 148
1967	399 Sh 149
1968	399 Sh 150
1969	399 Sh 151
1970	399 Sh 152
1971	399 Sh 153
1972	399 Sh 154
1973	399 Sh 155
1974-1978	No site plans for these years.

D. Existing Conditions and Recommendations

As can be seen on the following map, the railroad track system has under-gone considerable change. The 1,000 linear feet of standard gauge track which remains is primarily located on Piers 1 and 2, along 1st Avenue and extending out of the yard along Lincoln Avenue. Much of the system is disjointed due to the paving over of many of the tracks. Through a visual inspection of the system, five switches were located and they all appear to be sealed shut.

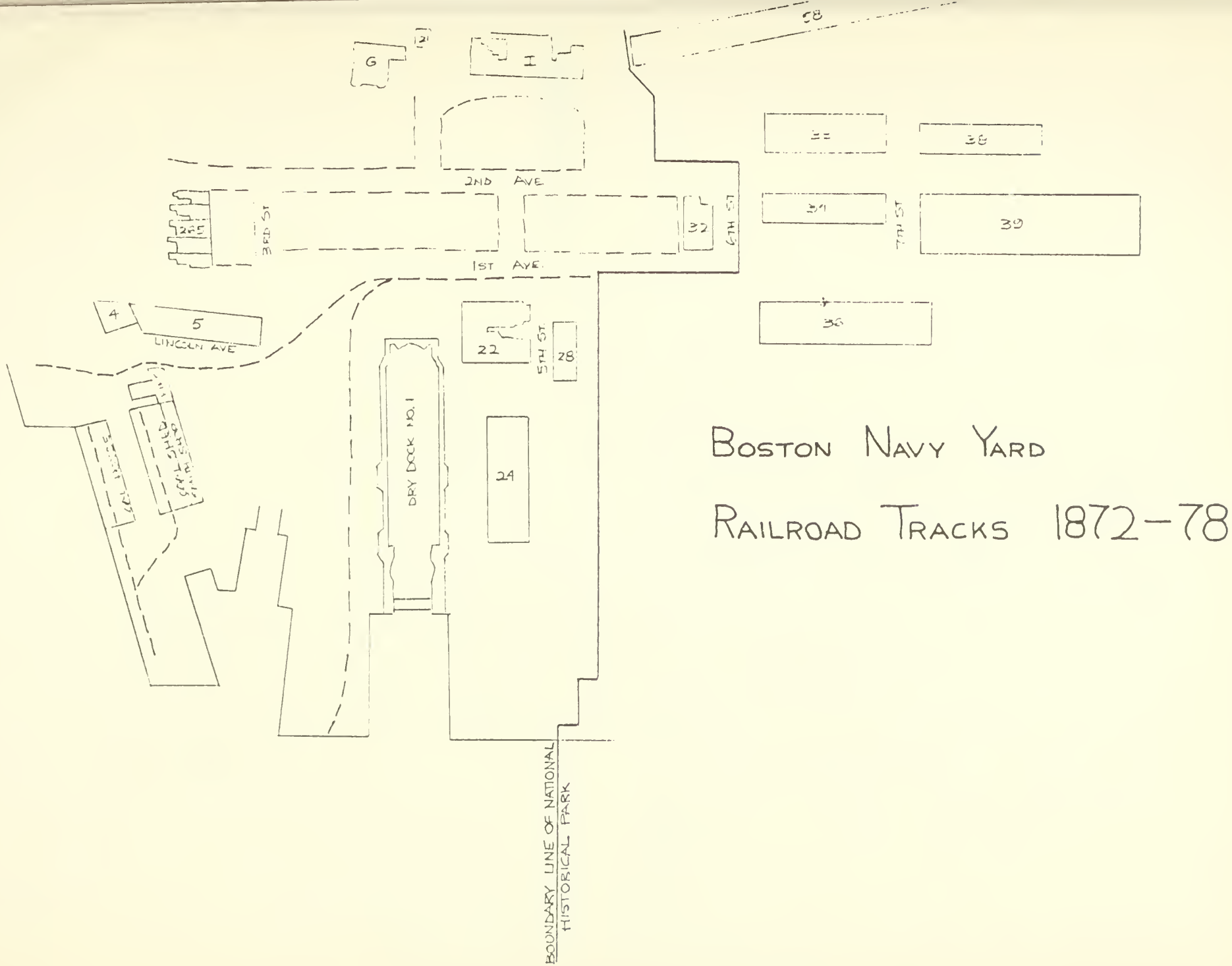
The tracks on each side of the Dry Dock No. 1 are complete only in that they each share a crane rail. It is not clear why the tracks east of Dry Dock No. 1 and north of Building 24 are not noted on the 1964-73 site plans, since they are there and are shown on the 1978 map. Possibly only those tracks which were being used were noted on the annual site plans.

The tracks which extend out of the yard along Lincoln Avenue are connected with the Boston and Maine Railroad. The Boston and Maine tracks are still being used and a direct connection with the yard could



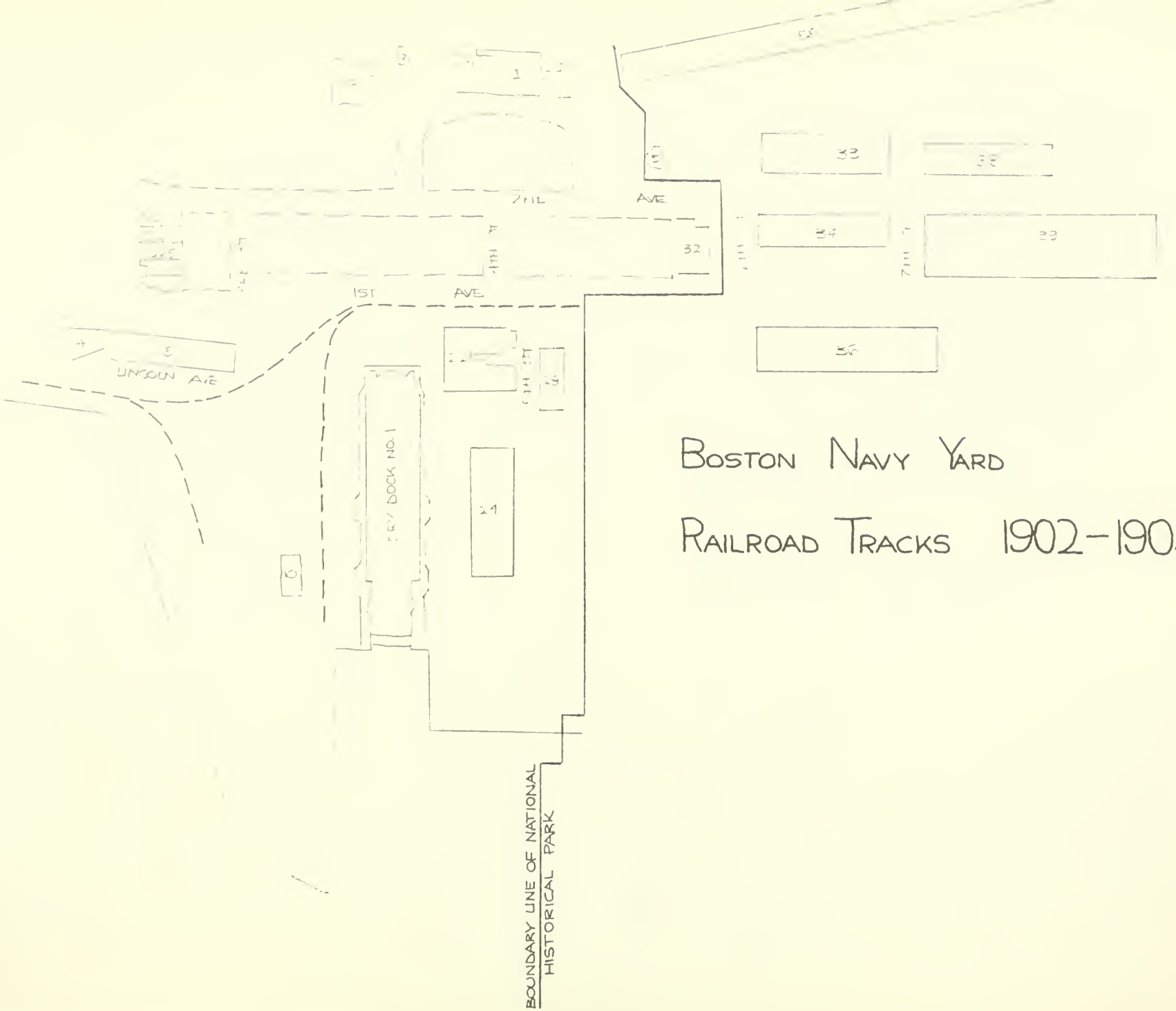
Boston Navy Yard

Railroad Tracks 1866-1871



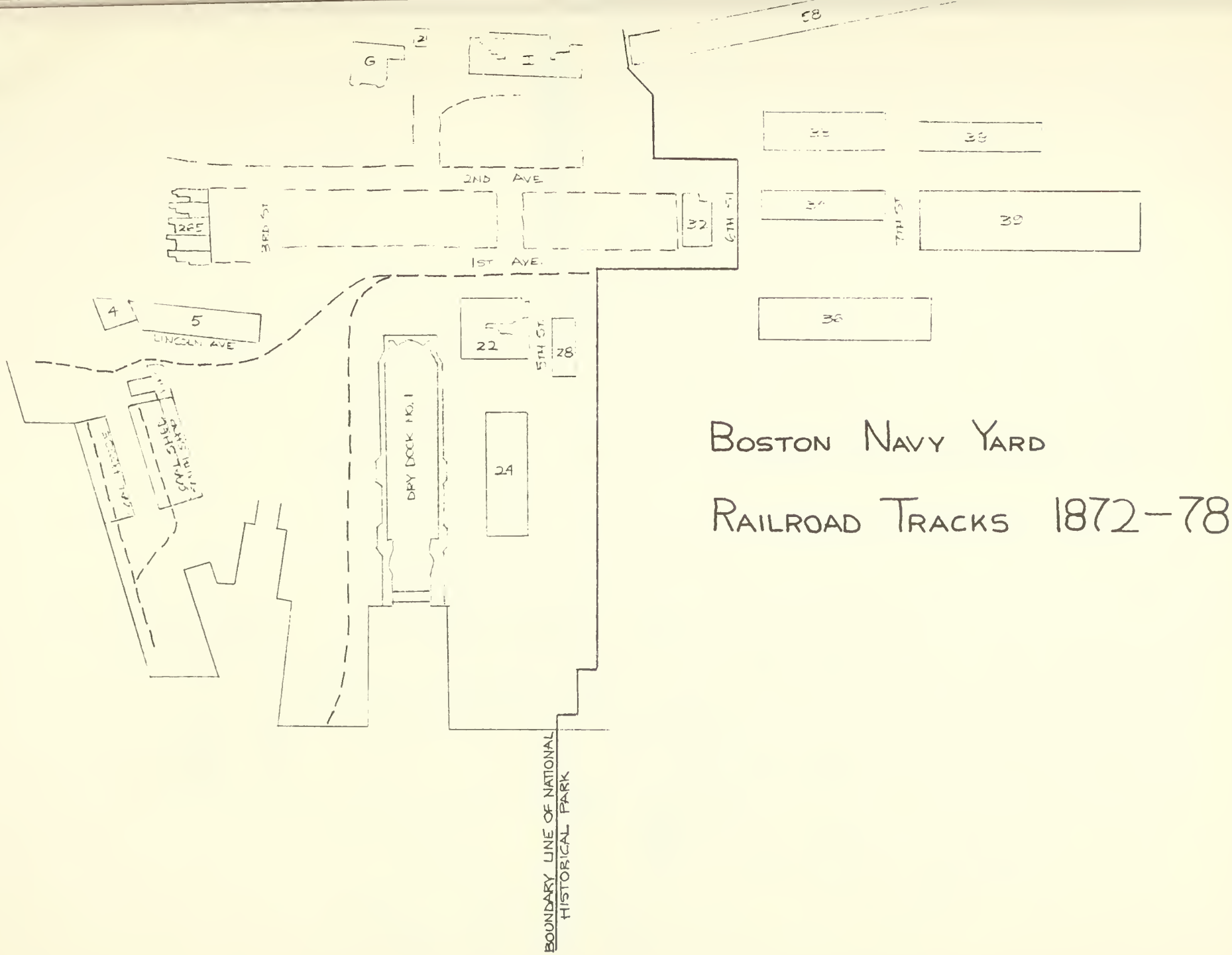
Boston Navy Yard

Railroad Tracks 1872–78



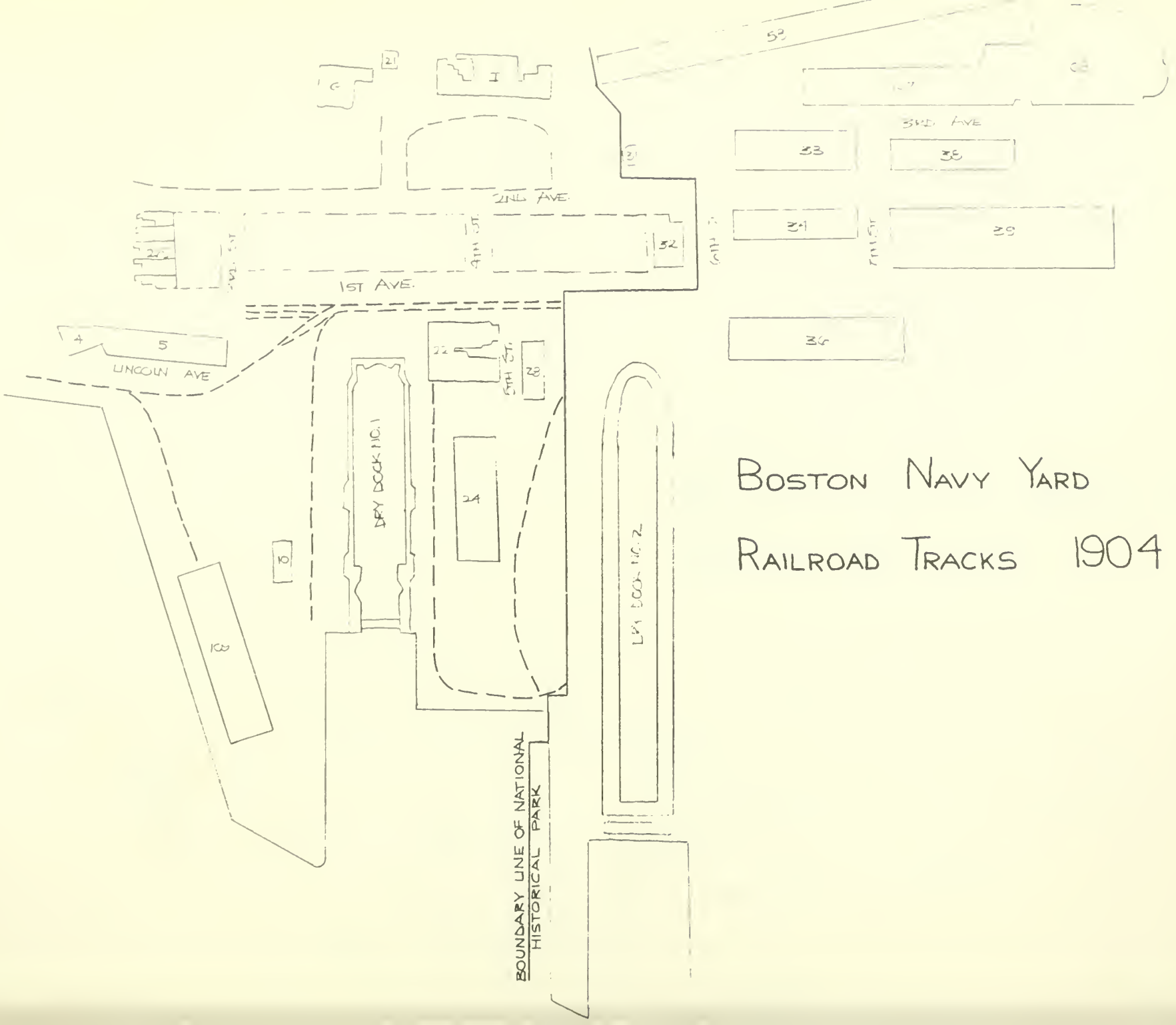
Boston Navy Yard

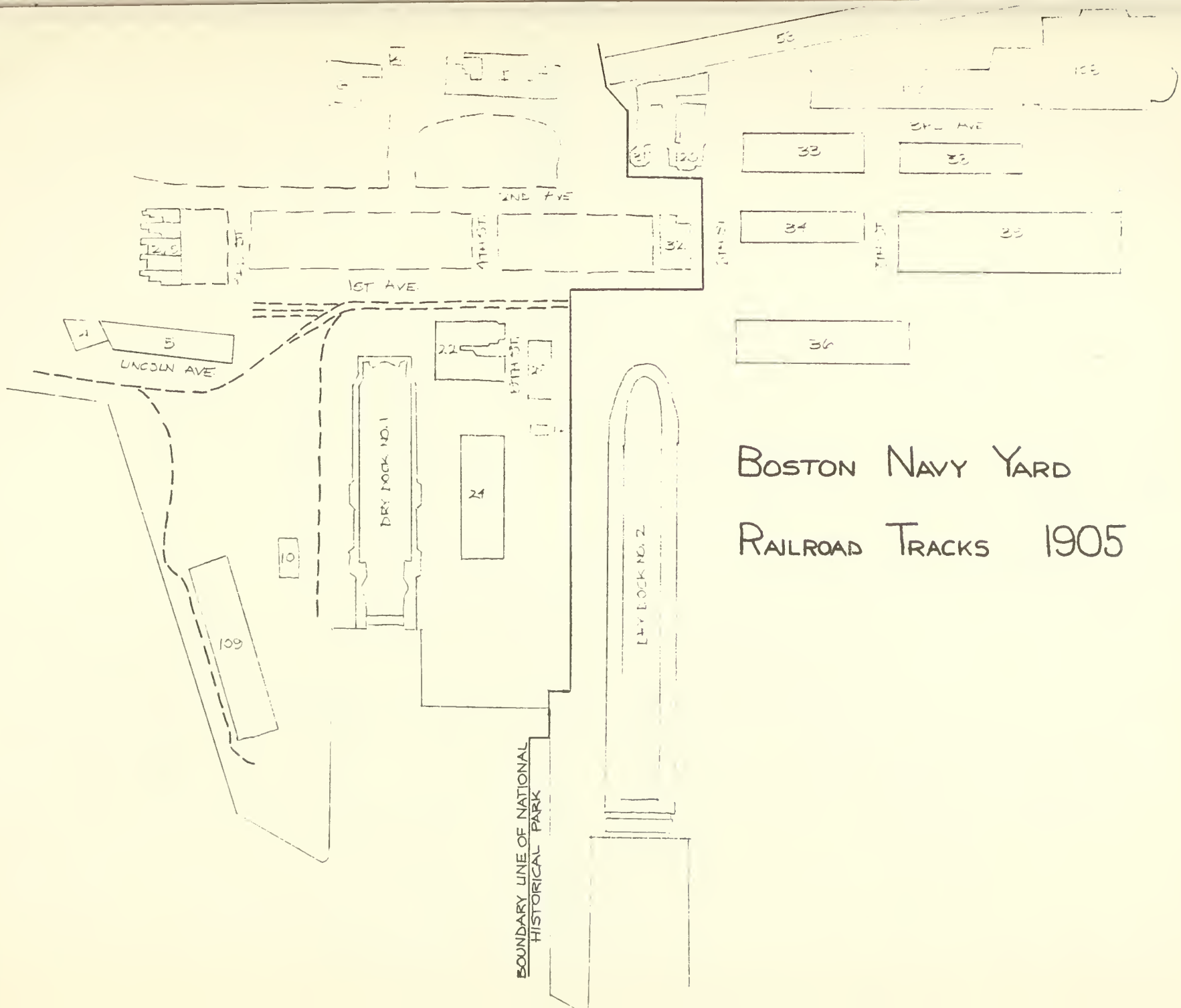
Railroad Tracks 1902-1903



BOSTON NAVY YARD

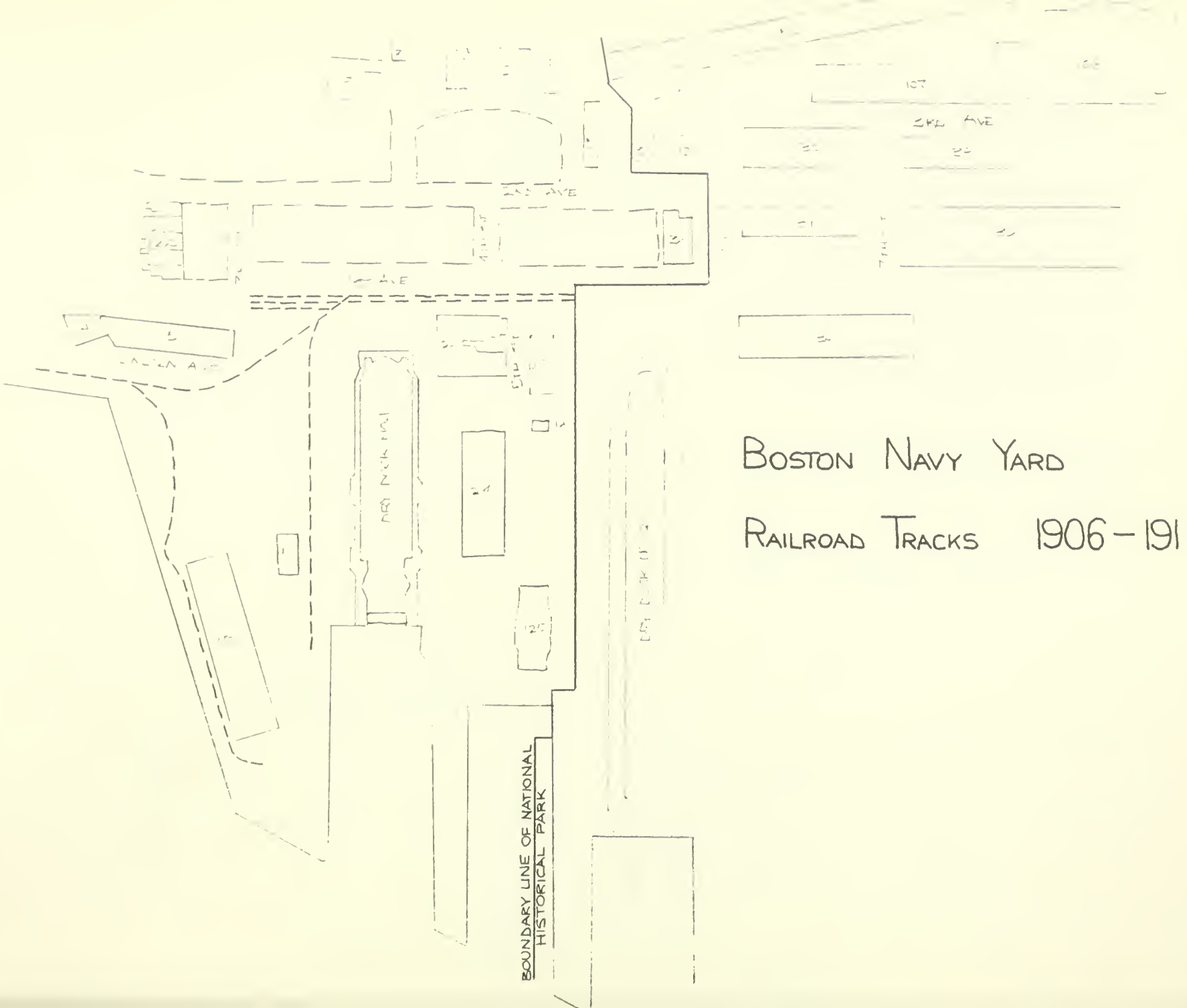
RAILROAD TRACKS 1872-78


BOSTON NAVY YARD
RAILROAD TRACKS 1904
1ST AVE.
2ND AVE.
3RD AVE
UNCOLN AVE
DRY DOCK NO. 1
DRY DOCK NO. 2
BOUNDARY LINE OF NATIONAL HISTORICAL PARK
4
5
10
21
22
24
28
32
33
35
36
100



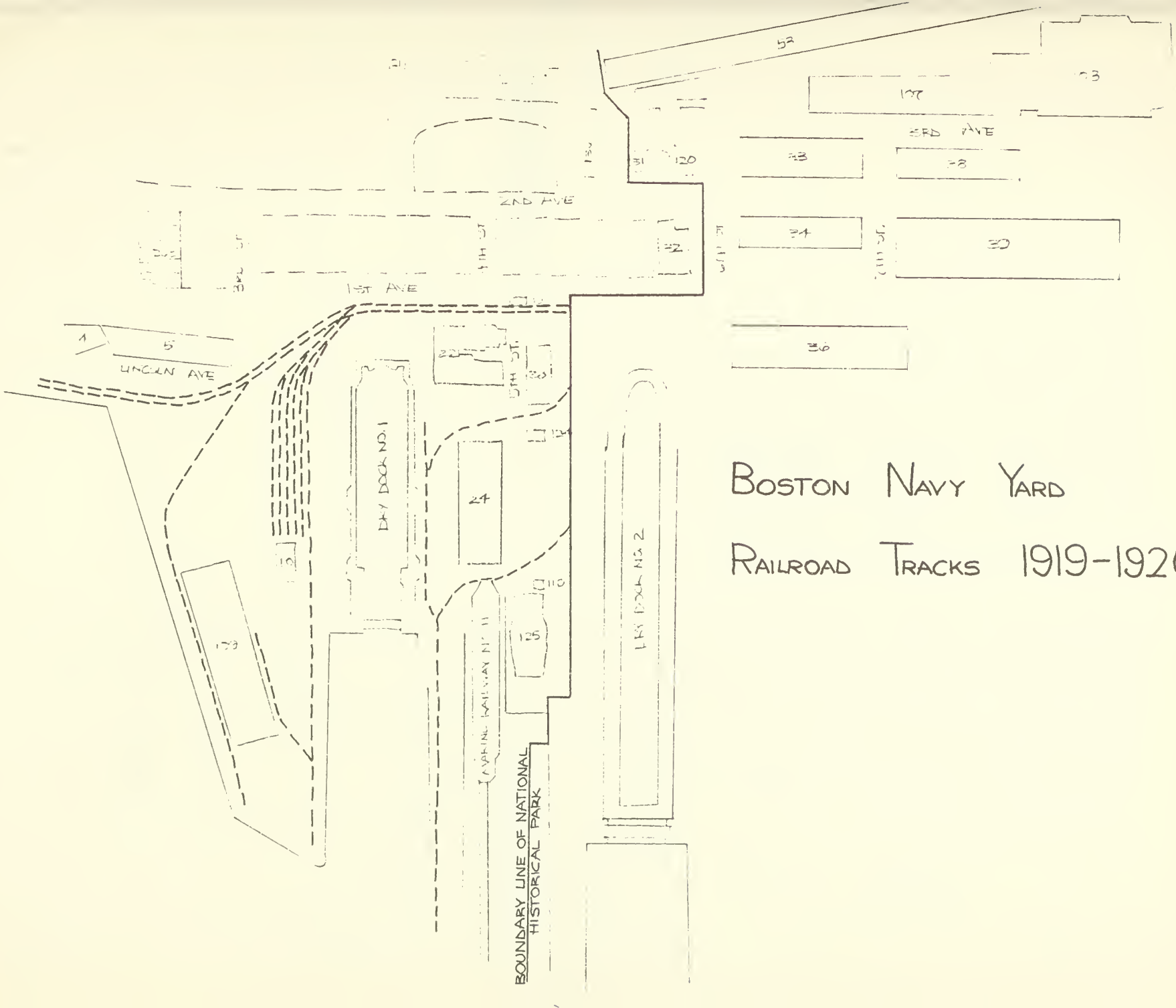
Boston Navy Yard

Railroad Tracks 1905



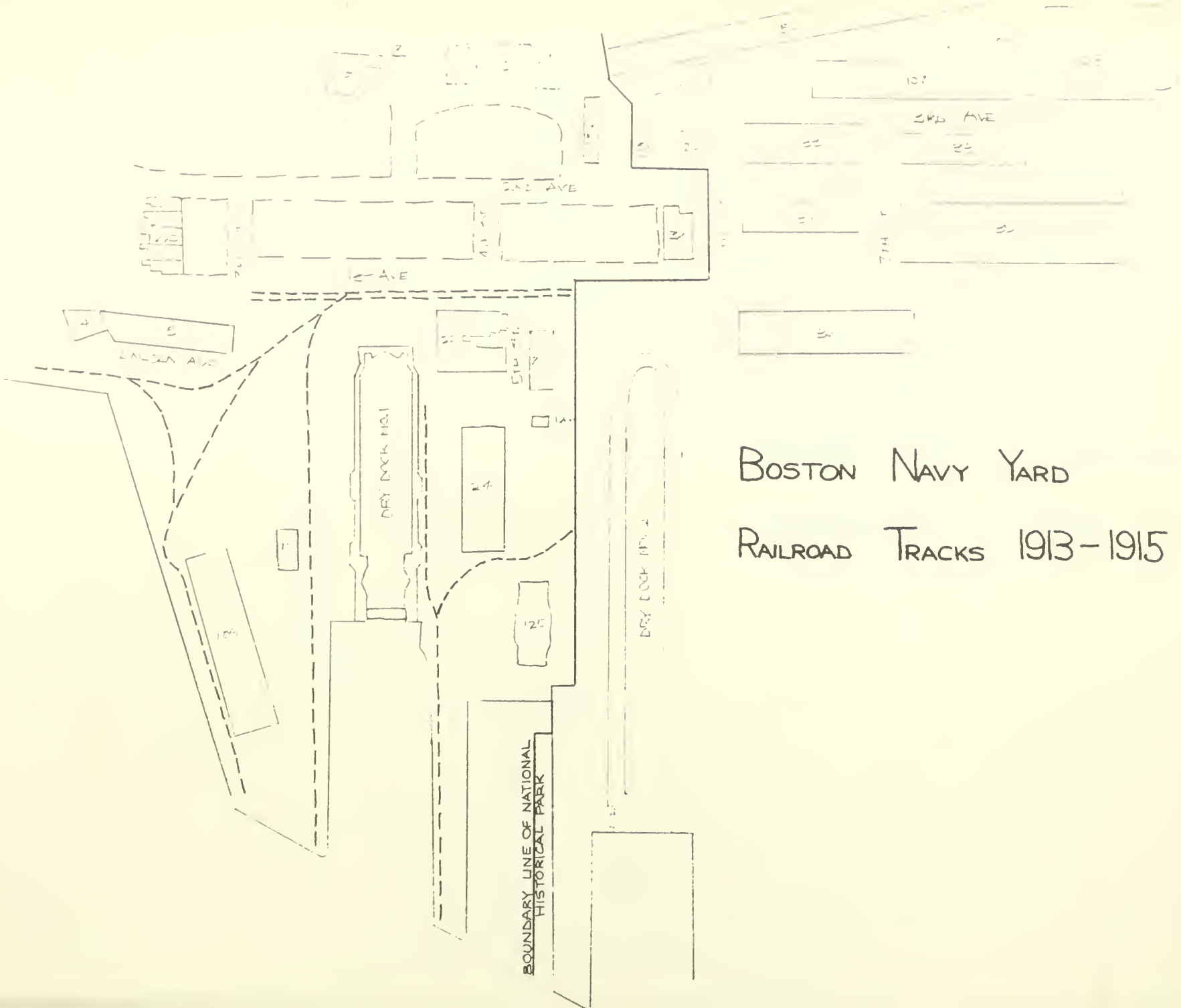
Boston Navy Yard

Railroad Tracks 1906 – 1911



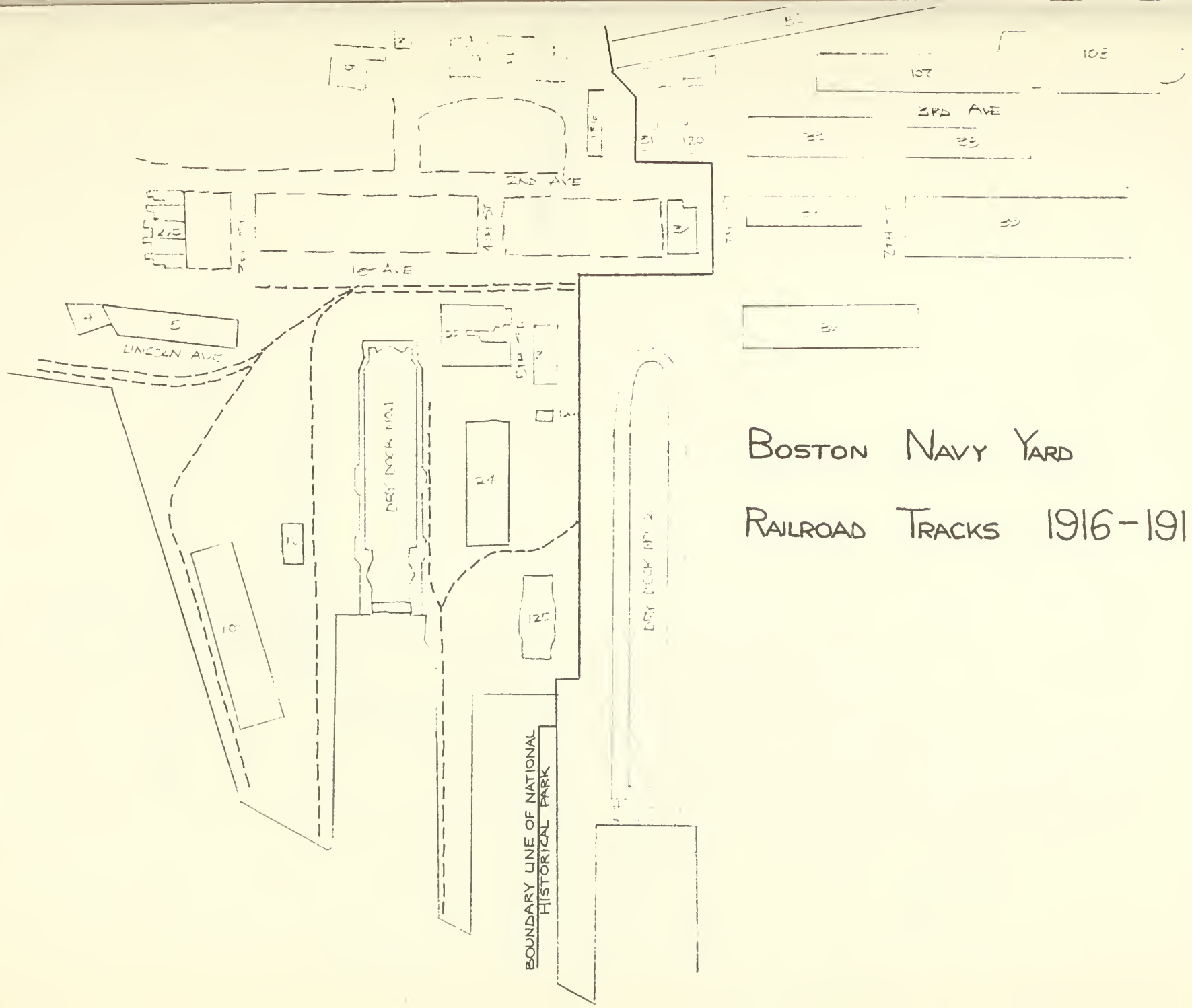
Boston Navy Yard

Railroad Tracks 1919-1920



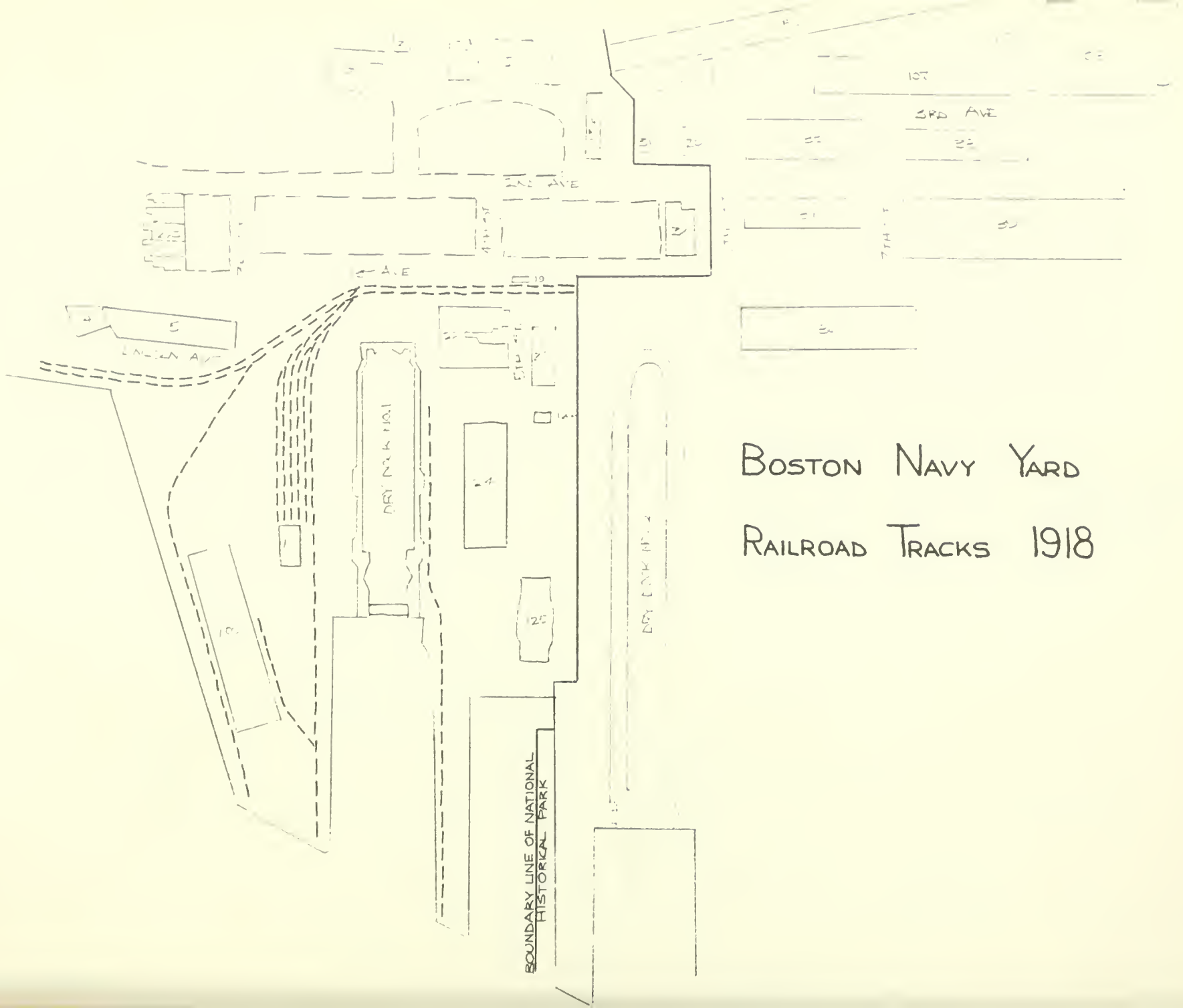
Boston Navy Yard

Railroad Tracks 1913-1915



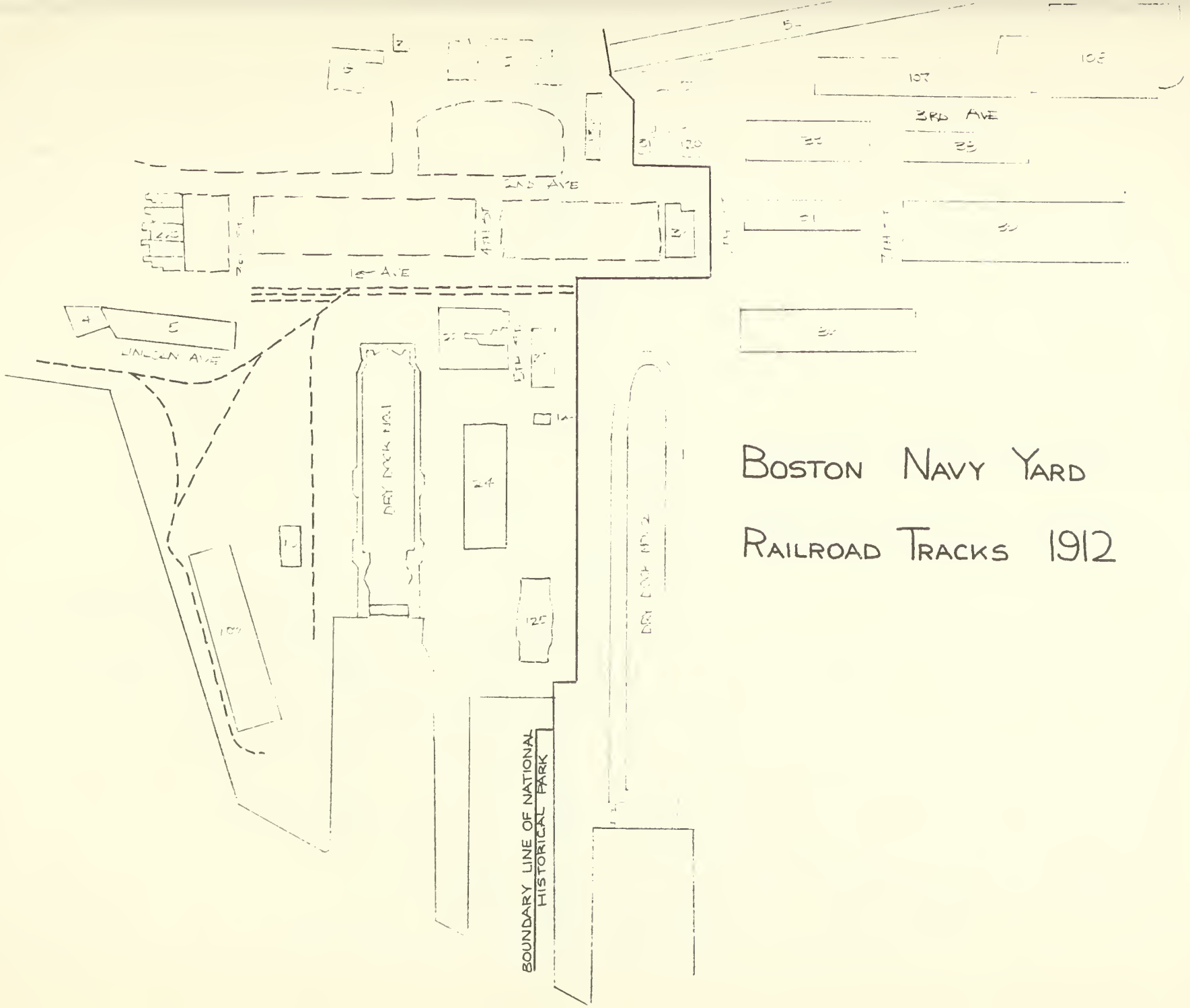
Boston Navy Yard

Railroad Tracks 1916-1917



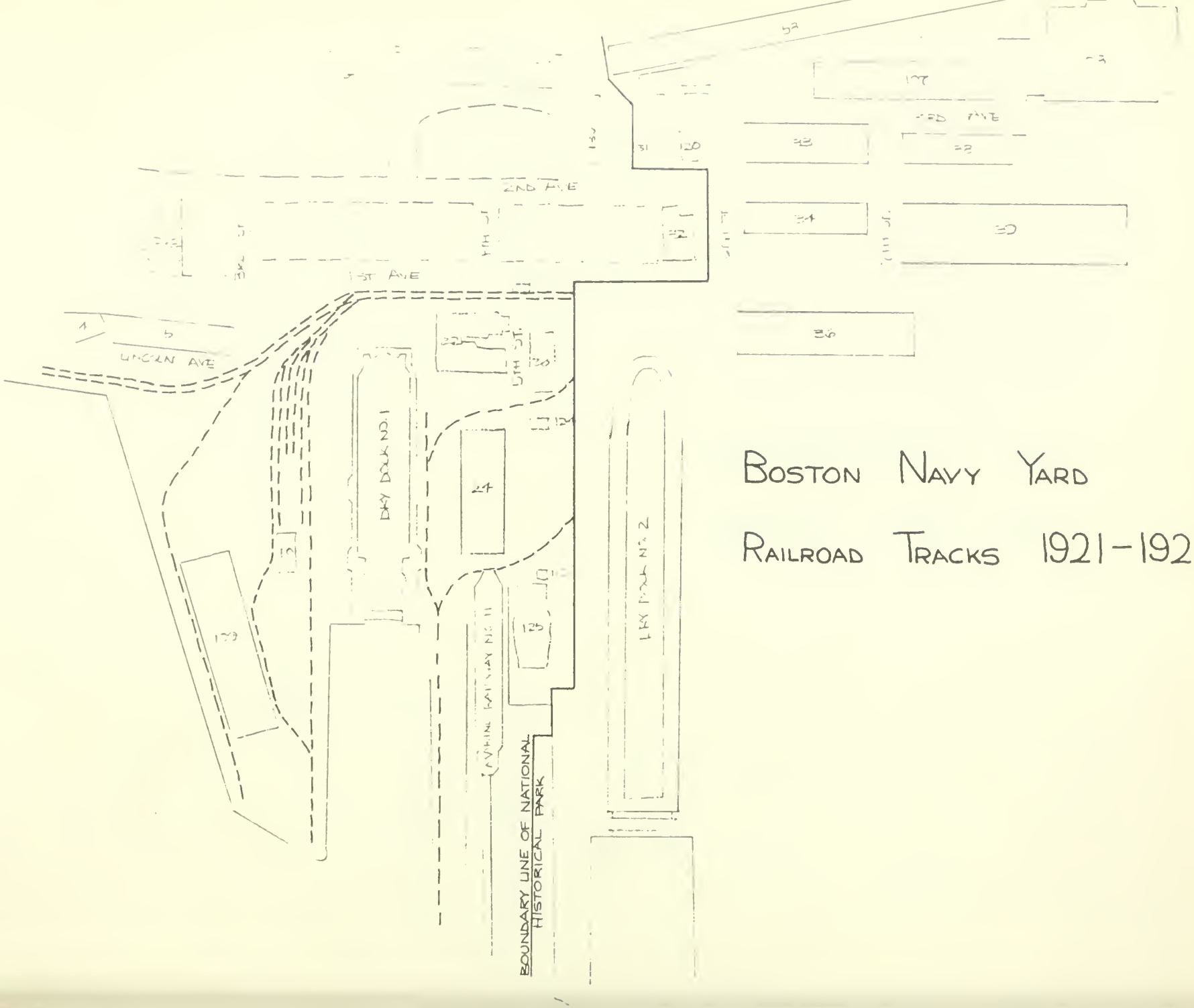
Boston Navy Yard

Railroad Tracks 1918



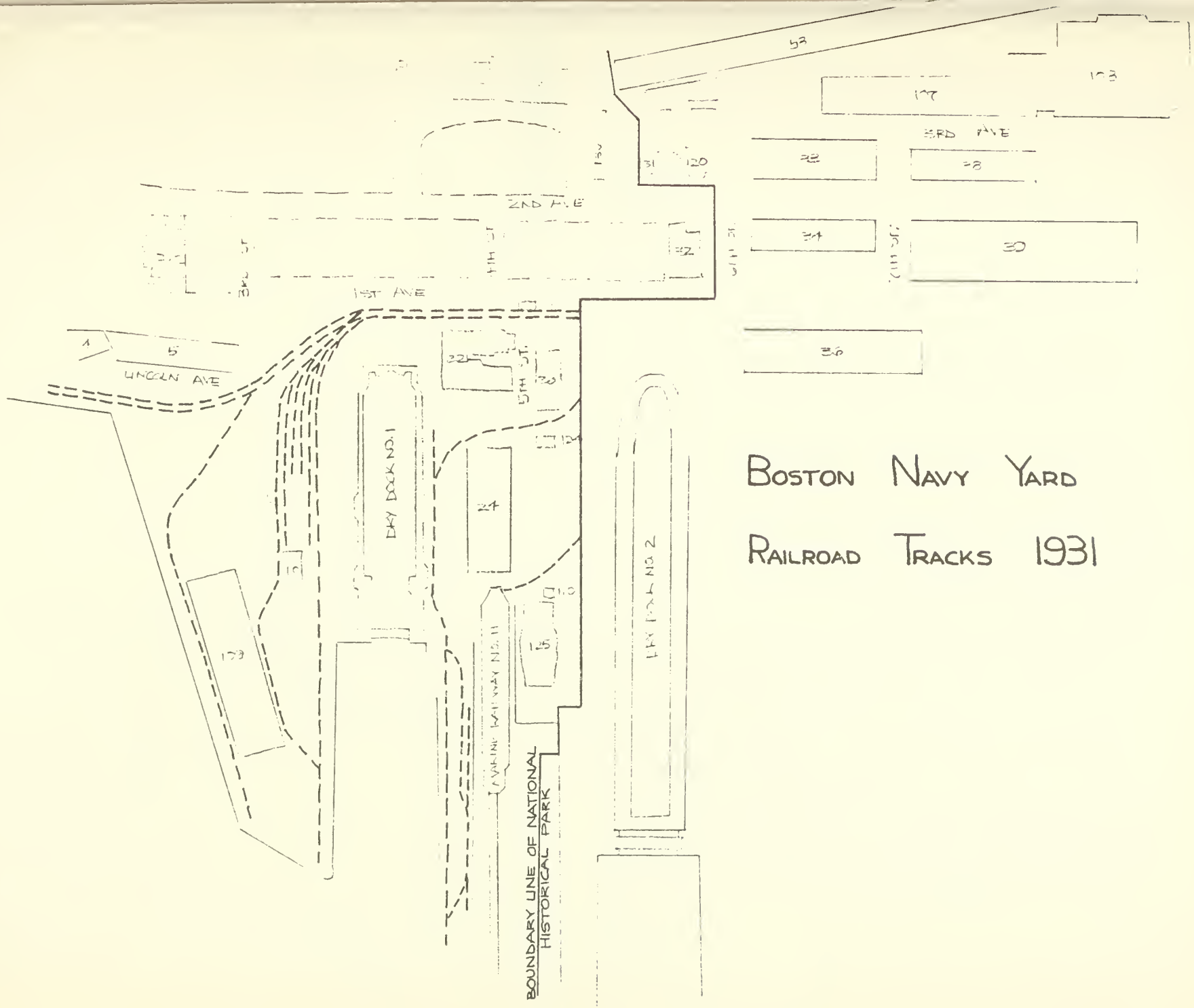
Boston Navy Yard

Railroad Tracks 1912



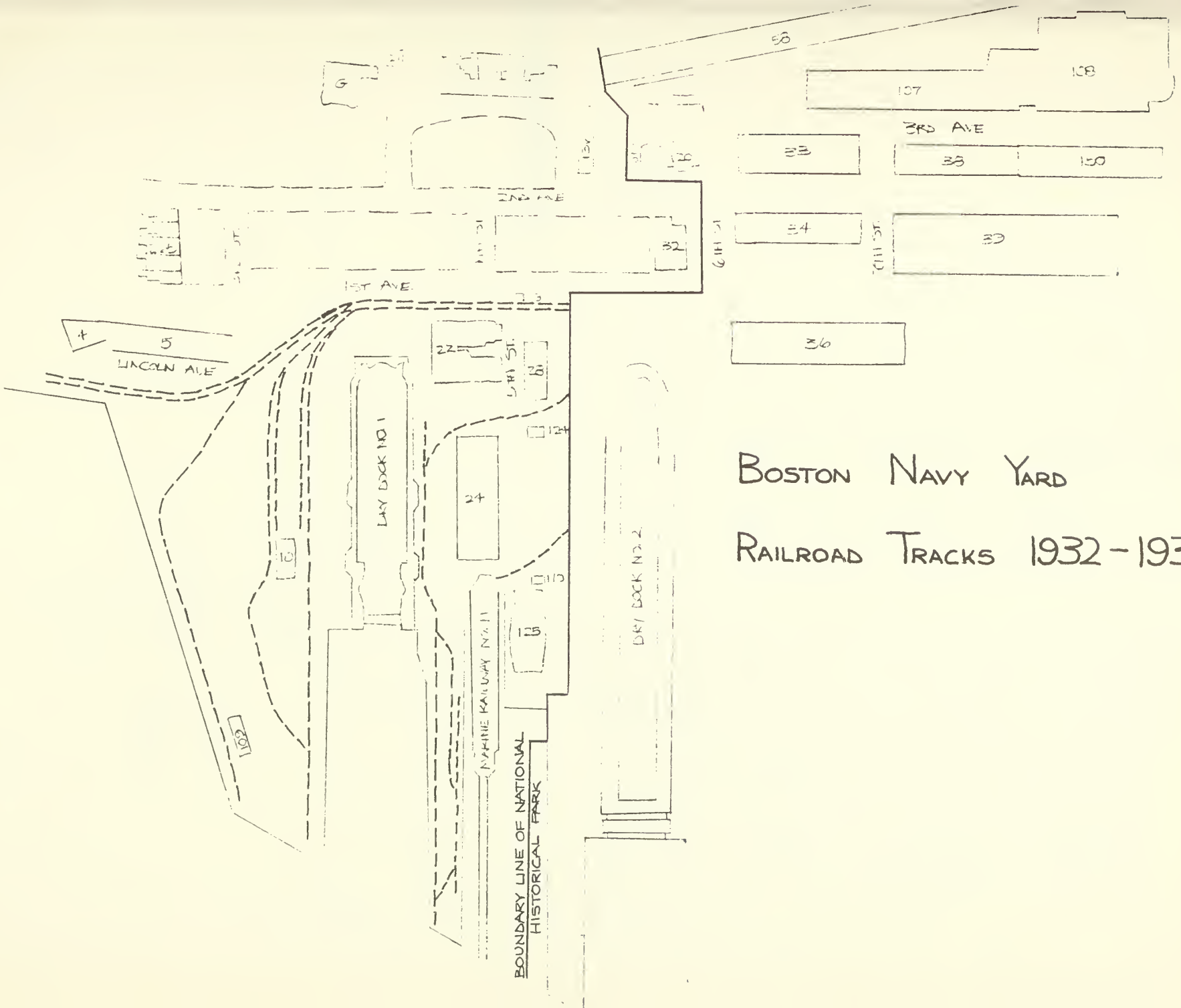
Boston Navy Yard

Railroad Tracks 1921-1929


BOSTON NAVY YARD
RAILROAD TRACKS 1931
2ND AVE
1ST AVE
3RD AVE
LINCOLN AVE
DRY DOCK NO. 1
DRY DOCK NO. 2
BOUNDARY LINE OF NATIONAL HISTORICAL PARK

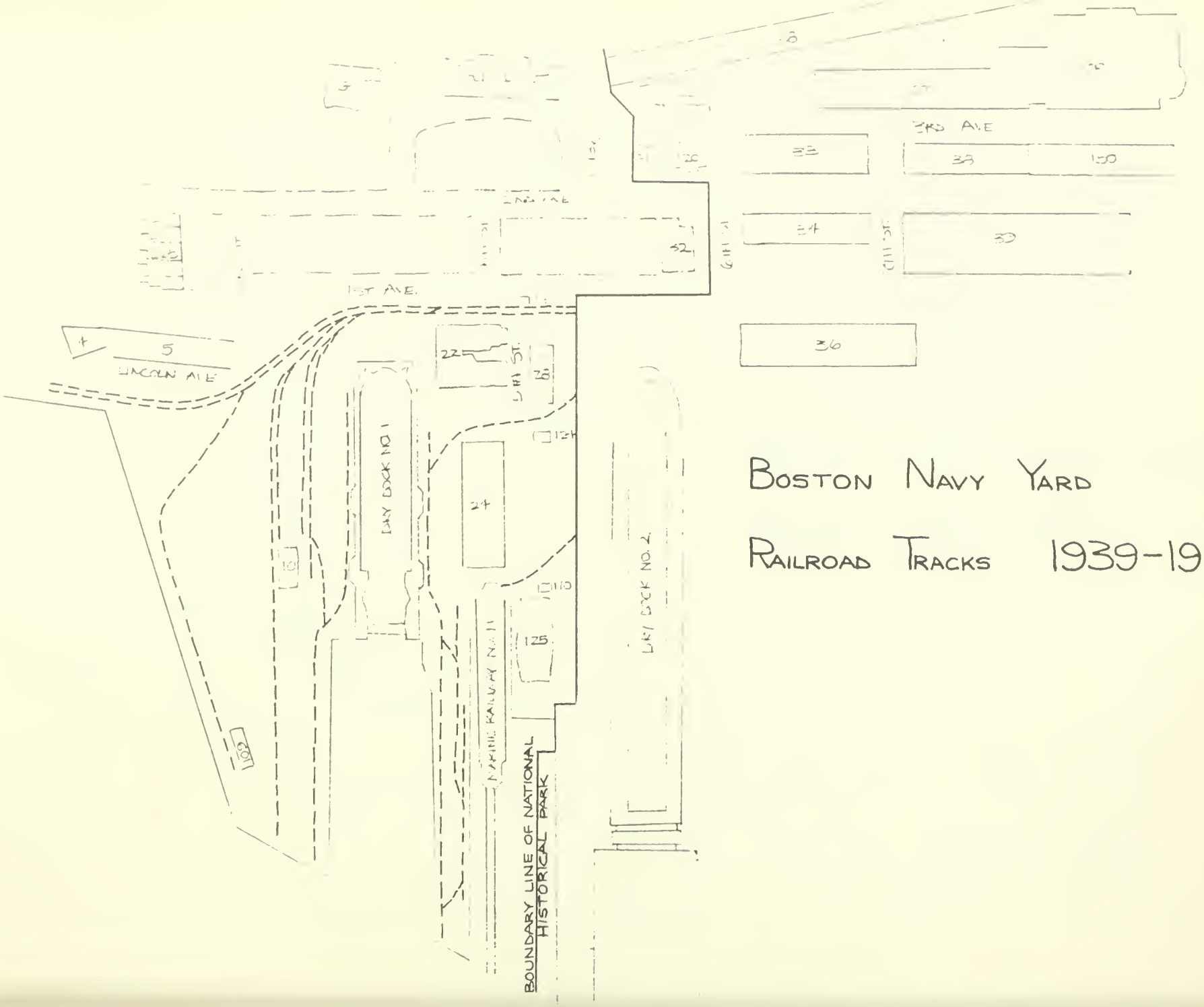
Boston Navy Yard

Railroad Tracks 1937



Boston Navy Yard

Railroad Tracks 1932-1935

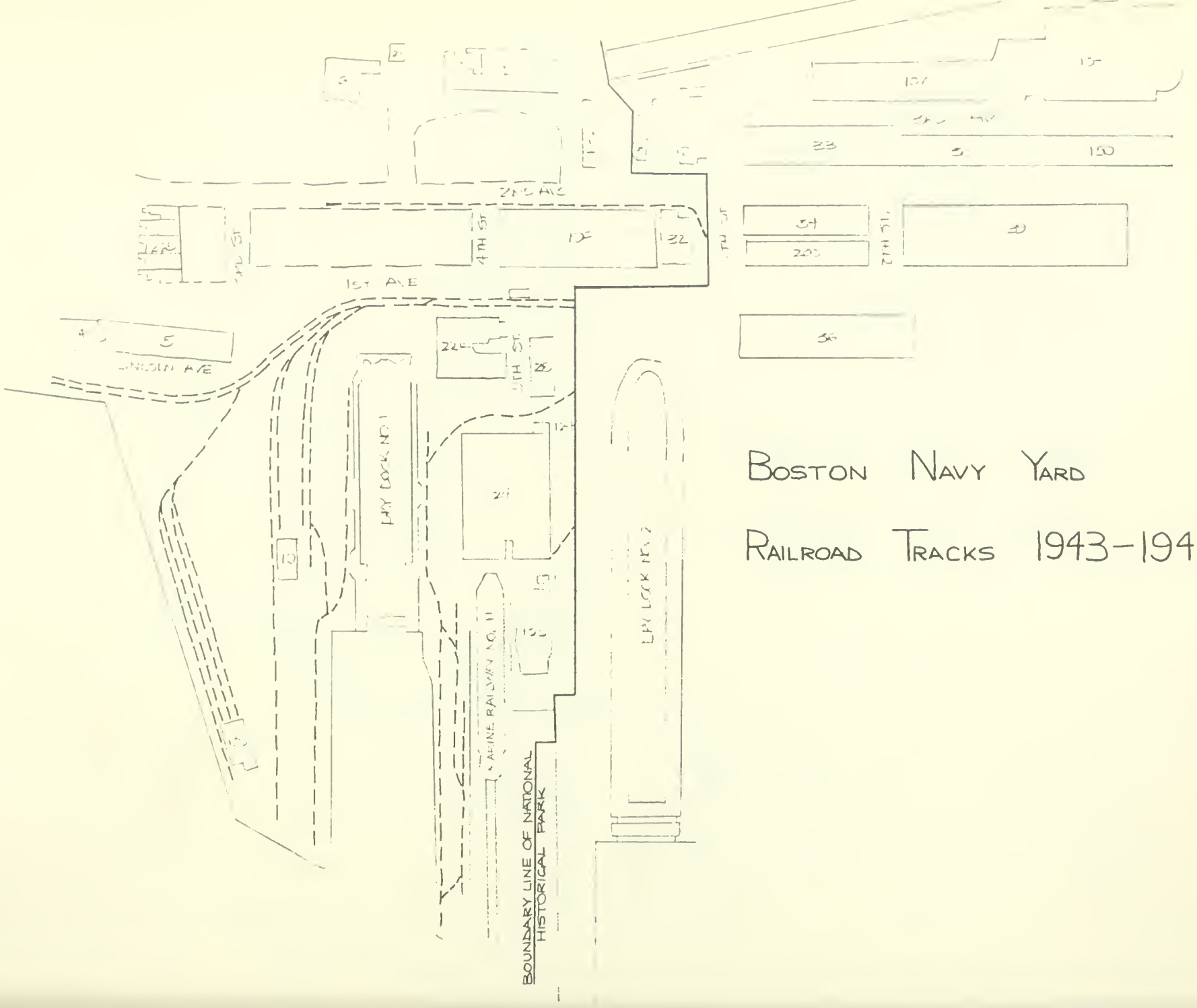


Boston Navy Yard

Railroad Tracks 1939-1940

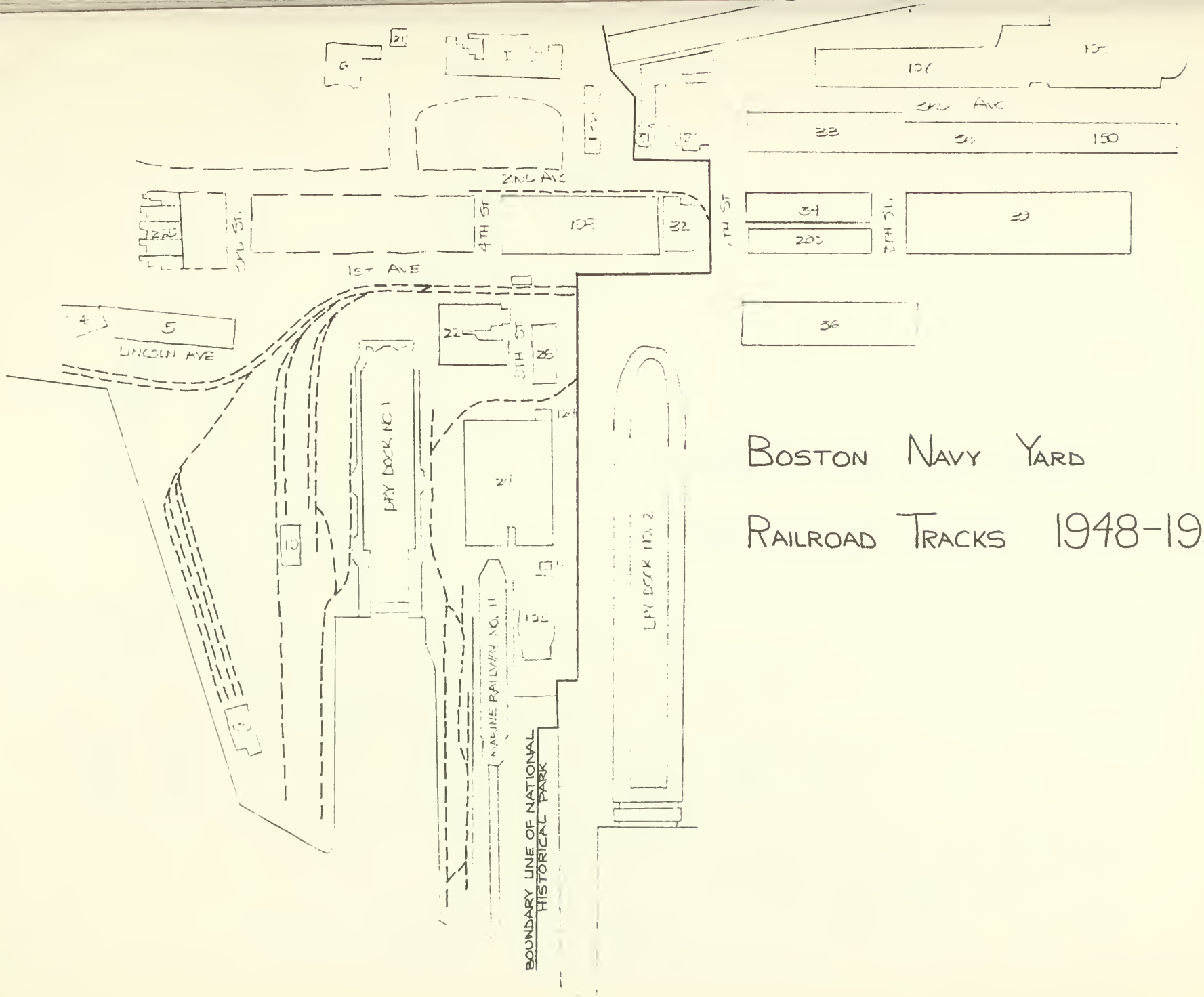
Boston Navy Yard

Railroad Tracks 1941



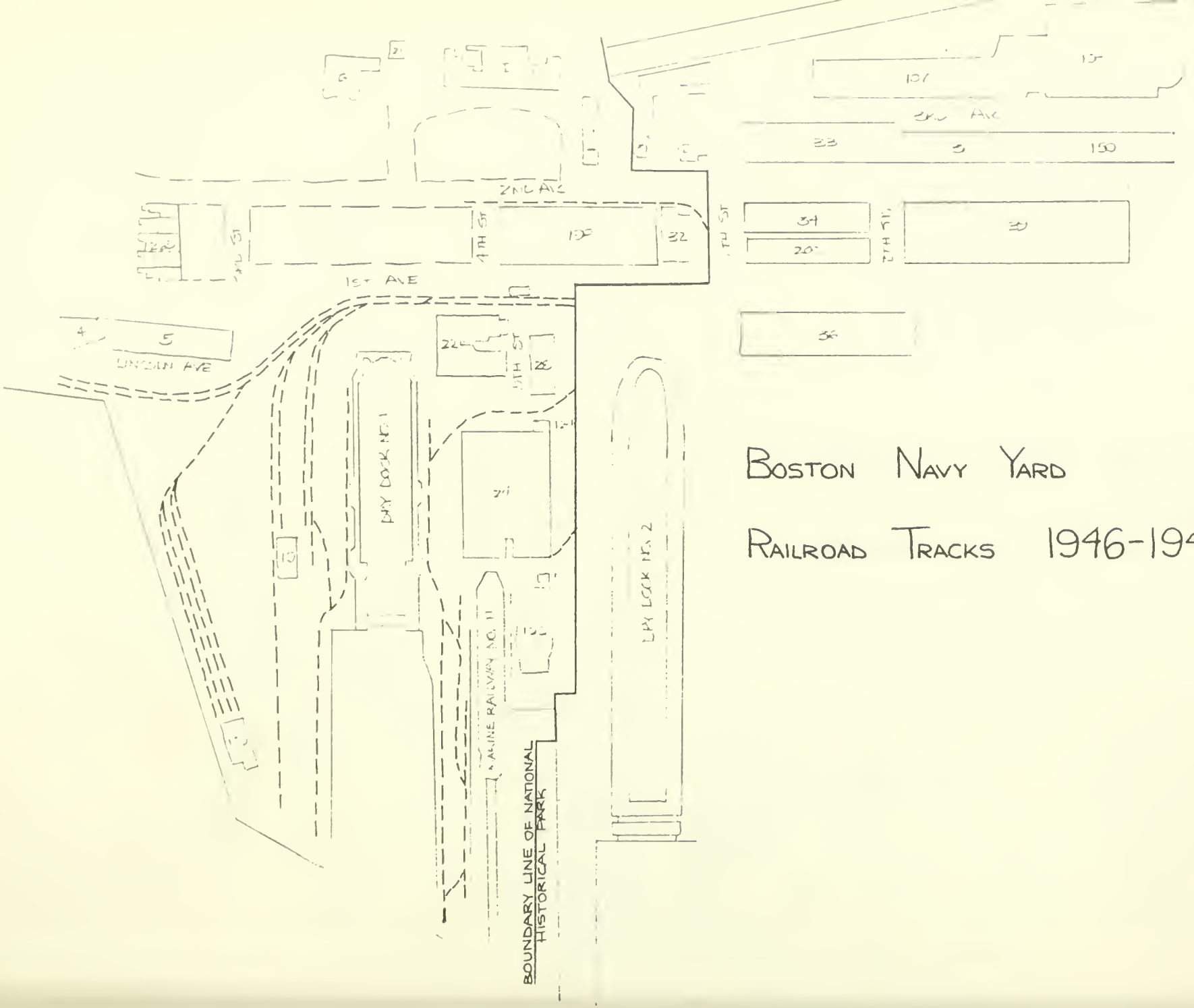
Boston Navy Yard

Railroad Tracks 1943-1944



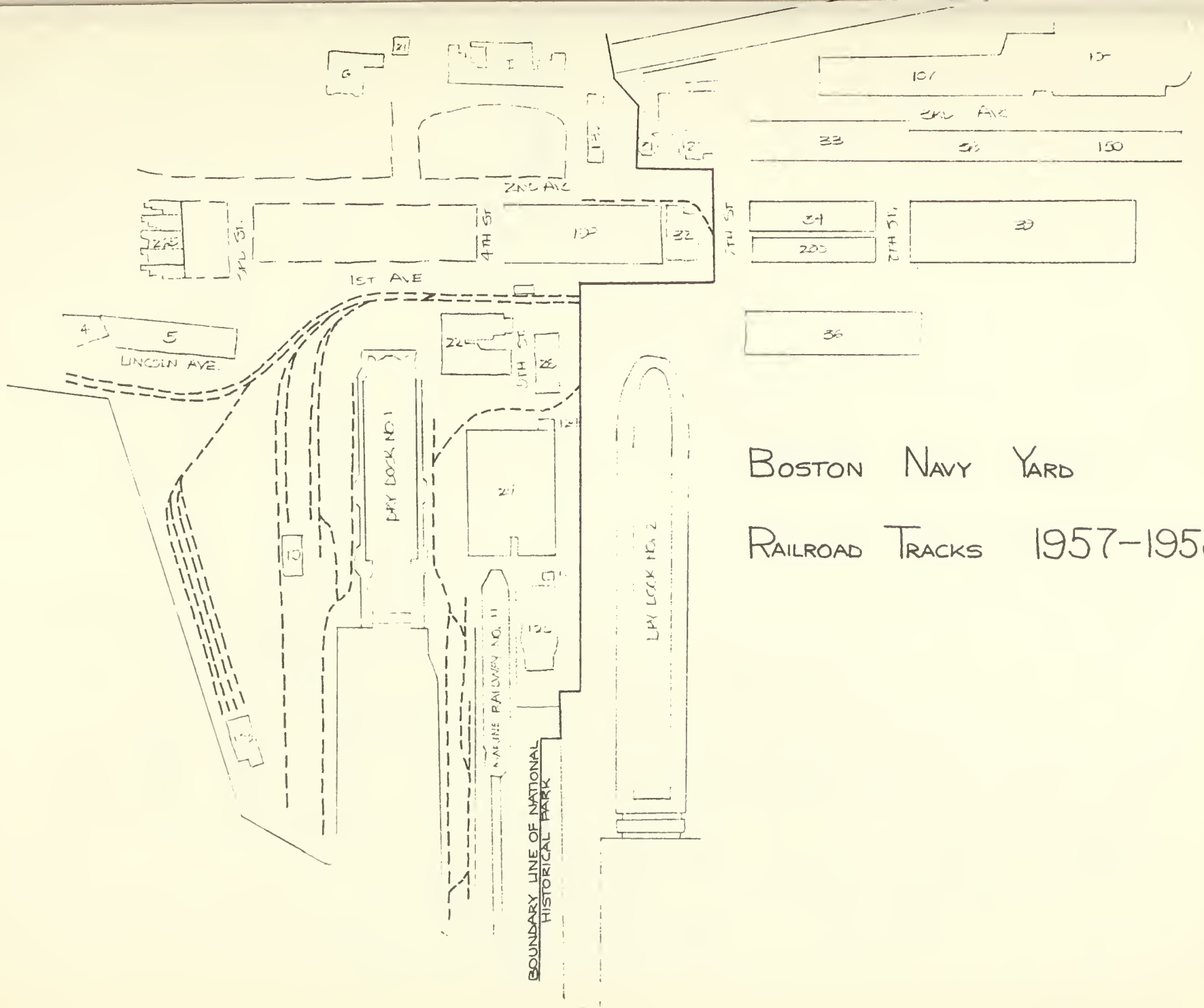
Boston Navy Yard

Railroad Tracks 1948-1956



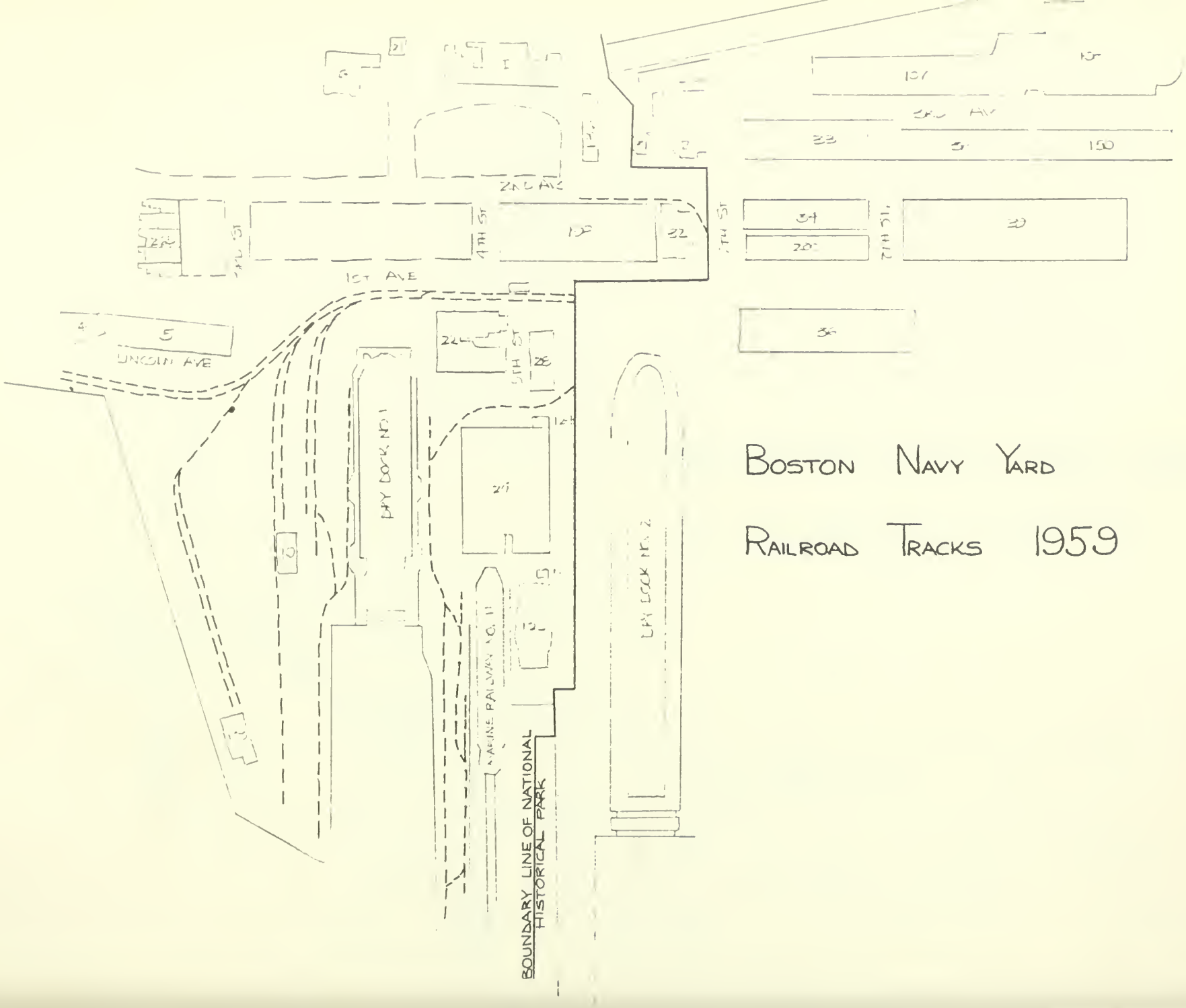
Boston Navy Yard

Railroad Tracks 1946-1947



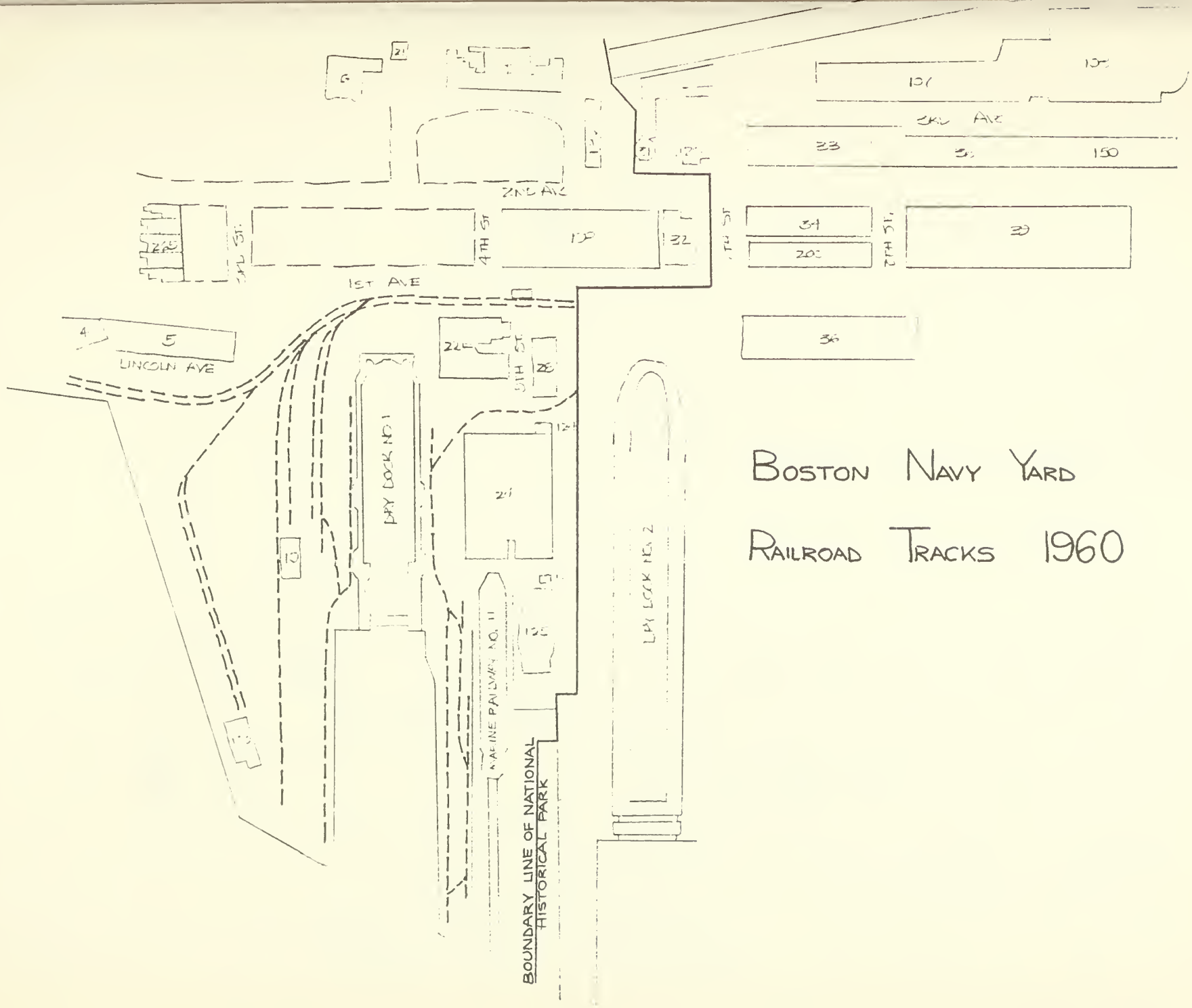
Boston Navy Yard

Railroad Tracks 1957–1958



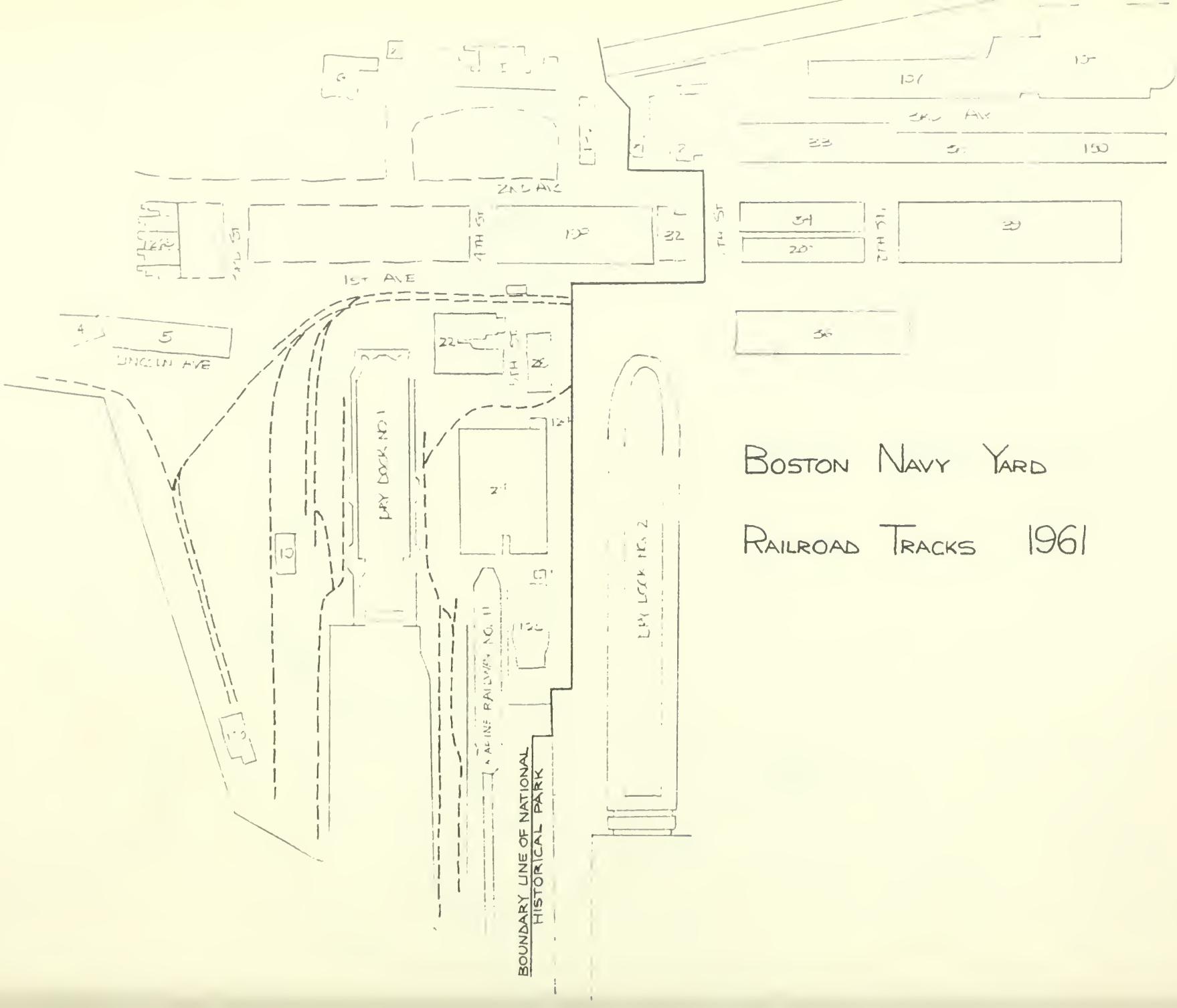
Boston Navy Yard

Railroad Tracks 1959



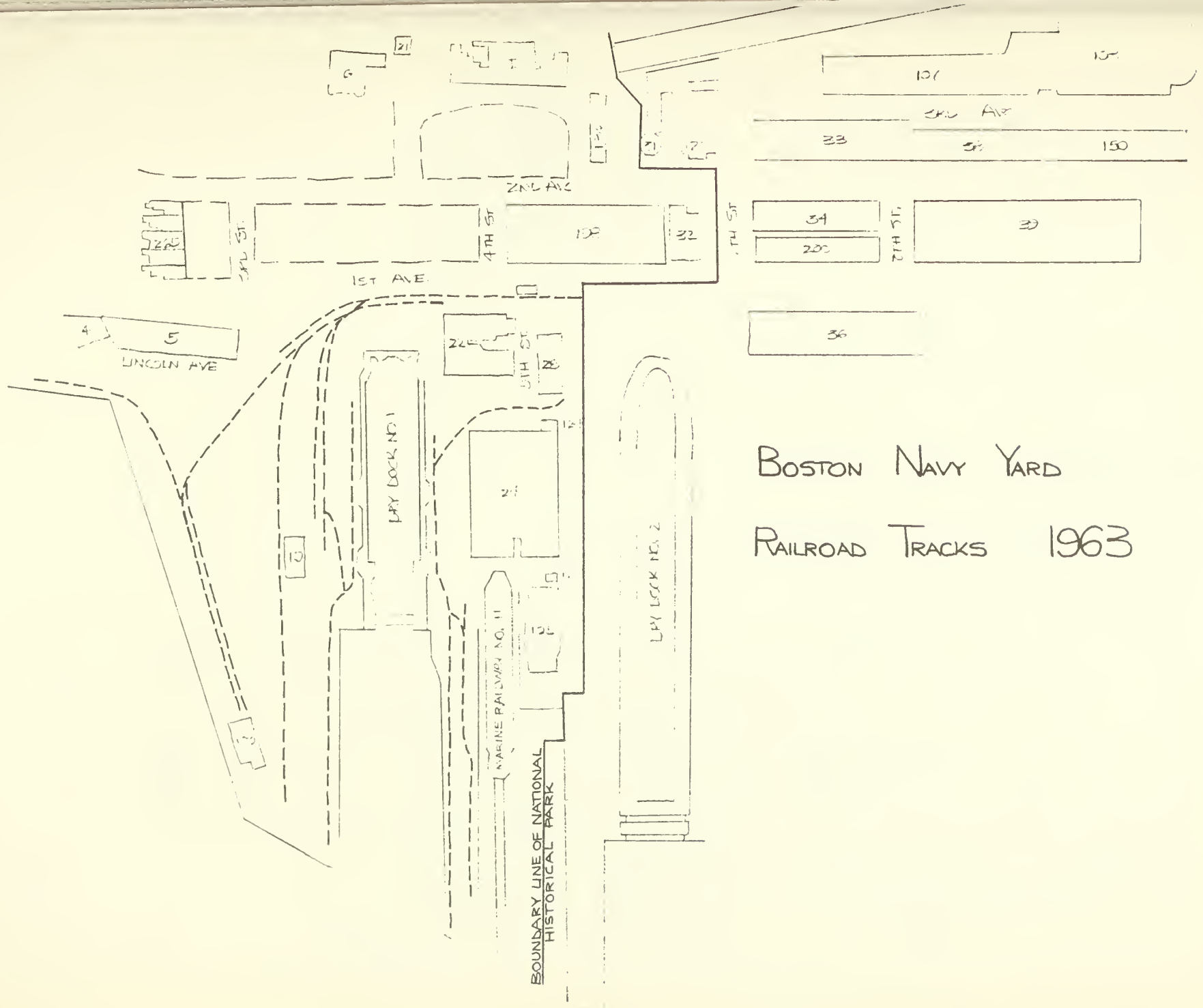
Boston Navy Yard

Railroad Tracks 1960



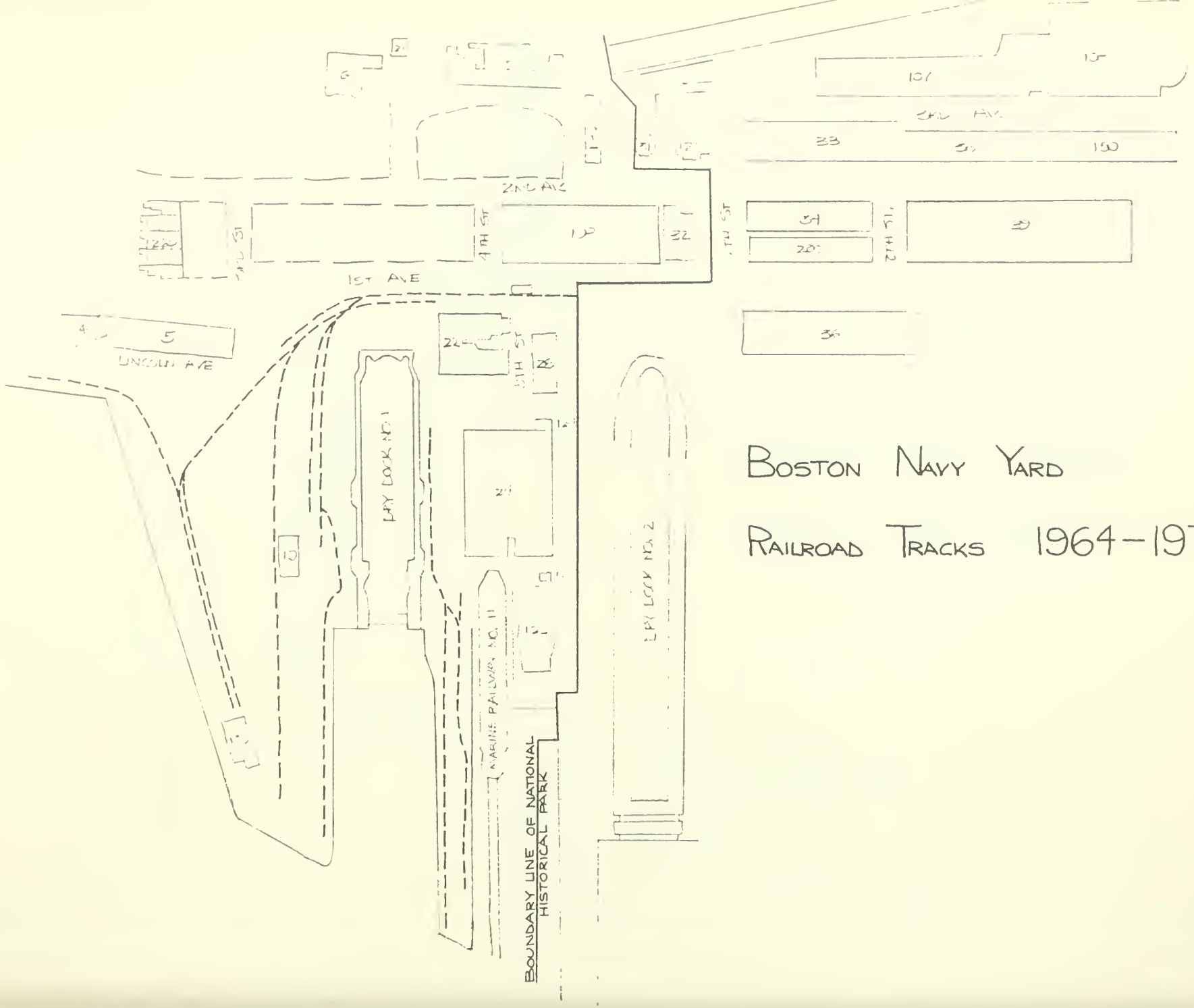
Boston Navy Yard

Railroad Tracks 1961



Boston Navy Yard

Railroad Tracks 1963



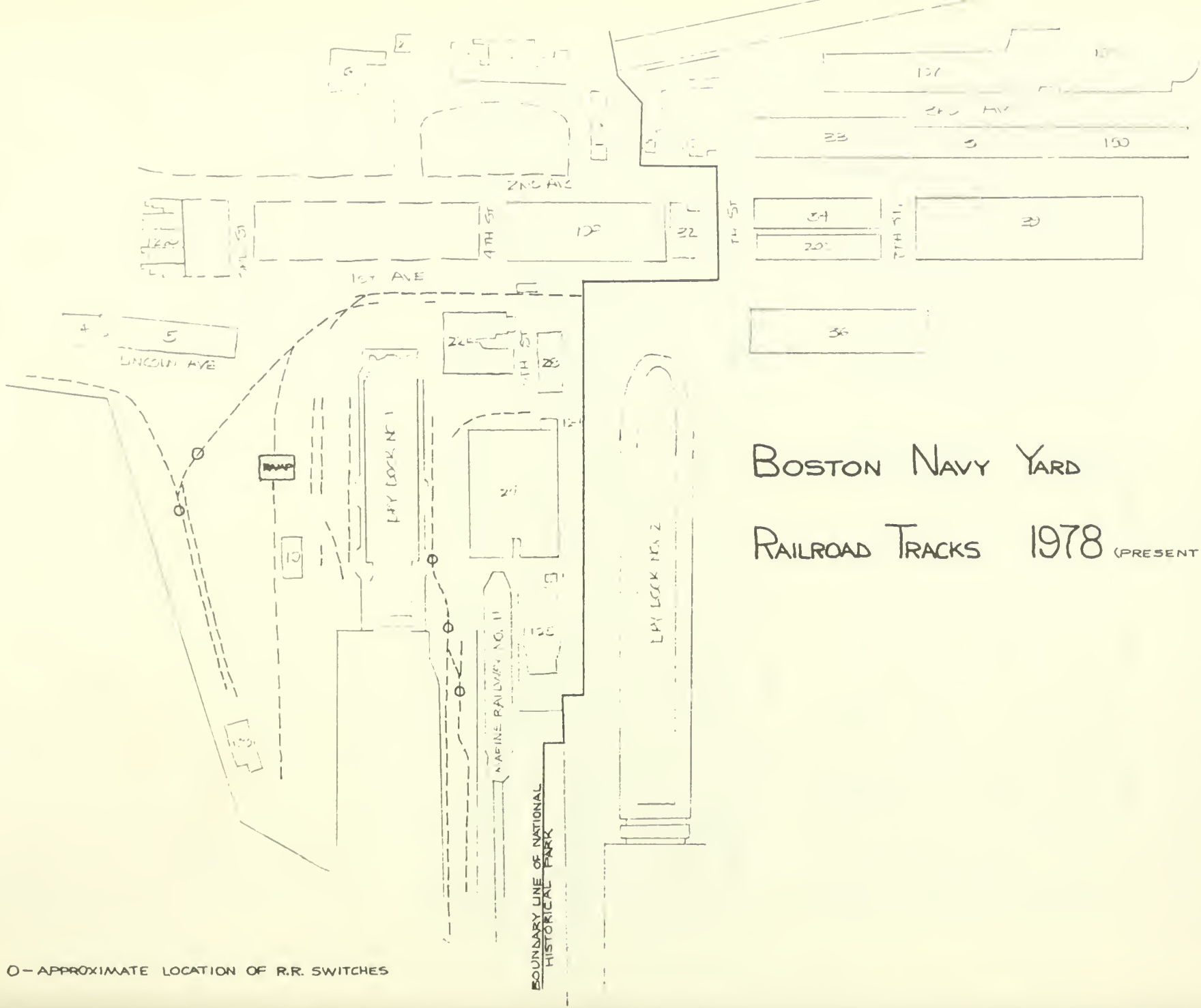
Boston Navy Yard

Railroad Tracks 1964–1973

once again be accomplished. Presently there is a fence near the Bunker Hill Pavilion which blocks this connection.

Before the yard was disestablished by the Navy the railroad track system was being used less frequently, with motor vehicles handling most of the shipping of material in and out of the yard. For the last four years, trains have not been used at all and it is questionable whether there is a need for a track system today. Since the track system has not been continually maintained for a number of years, extensive rehabilitation would be necessary, as well as additional trackage to allow access to the tracks on Ist Avenue. Presently, the area at the head of Pier 1, where there are also railroad tracks, is being used as a visitor parking area.

If the track system is to be maintained in its present configuration, as it was when the yard was disestablished by the Navy, it would be incon-sistent to construct additional tracks (estimated to be approxiamtely 400 linear feet) on Lincoln Avenue connecting the tracks leading into the yard with the tracks on 1st Avenue. This particular portion of trackage was taken out in 1961. Since access to Ist Avenue could only be accomplished by laying this additional track, it would have to be decided whether a working railroad system is needed or to retain the appearance of the yard as it was in the early 1970s. Also, since the track system is in disrepair, the economic feasibility of rehabilitating it would have to be considered.



BOSTON NAVY YARD

RAILROAD TRACKS 1978 (PRESENT CONDITIONS)

O – APPROXIMATE LOCATION OF R.R. SWITCHES

BIBLIOGRAPHY

Annual Reports of the Boston Navy Yard, National Archives, Washington, D.C., 1842-1852, 1854-1859.

Annual Reports of the Boston Navy Yard, National Archives, Washington, D.C., from Edwin Bearss' notes of 1886-1897.

Annual Report of the Chief of the Bureau of Yards and Docks to the Secretary of the Navy for the Fiscal Year 1906. Washington, D.C., Government Printing Office, 1906.

Annual Report of the Chief of the Bureau of Yards and Docks to the Secretary of the Navy for the Fiscal Year 1908. Washington, D.C., Government Printing Office, 1908.

Annual Report of the Chief of the Bureau of Yards and Docks to the Secretary of the Navy for the Fiscal Year 1909. Washington, D.C., Government Printing Office, 1909.

Annual Report of the Chief of the Bureau of Yards and Docks to the Secretary Of the Navy for the Fiscal Year 1910. Washington, D.C., Government Printing Office, 1910.

The Boston Naval Shipyard News. Vol. 15, No. 2 (August 14, 1950), pp. 4-5.

MacElwee, Roy S. Ports and Terminal Facilities. New York: McGraw-Hill Book Company, Inc., 1926.

Norton, Bettina A. The Boston Naval Shipyard, 1800-1974. Boston, 1974.

Preble, George Henry. History of the Boston Navy Yard: 1797-1874. (Located in the manuscript collection of the New England Historic and Genealogical Society, Boston, Massachusetts.)

Public Works of the Navy, Data as Compiled by the Bureau of Yards and Docks, Navy Department. Washington, D.C., Government Printing Office, 1916.

Public Works of the Navy, Under the Cognizance of the Bureau of Yards and Docks and the Corps of Civil Engineers, U. S. Navy, Bulletin No. 38. Washington, D.C., May 1937.

Report of the Secretary of the Navy. Washington, D.C.: 1858, 1963, 1866, 1869, 1872, 1876, 1877, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1907, 1909, 1910, 1914.

Tratman, E. E. Russell. Railway Track and Track Work. New York: The Engineering News Publishing Company, 1901.

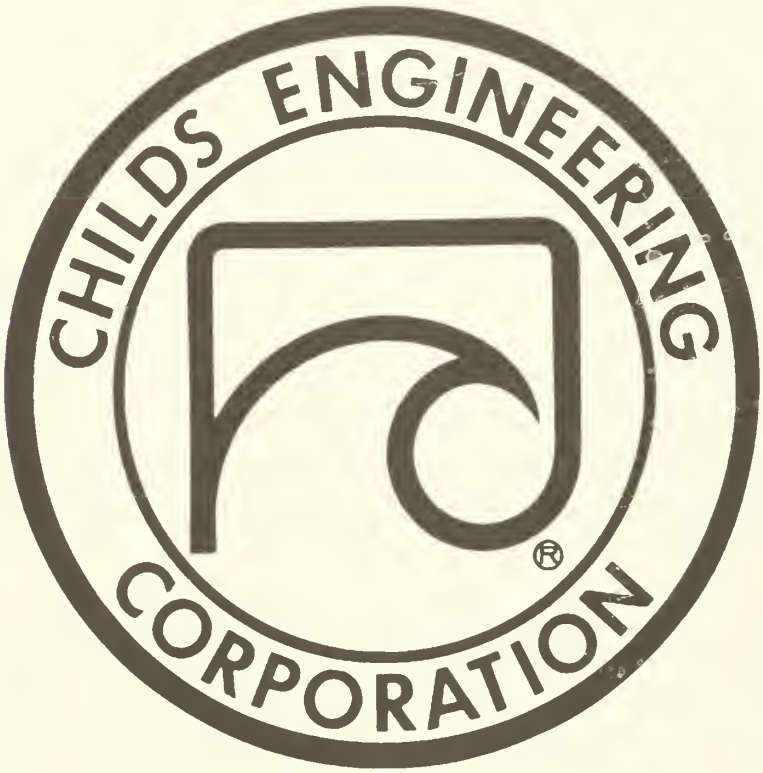
Winsor, Justin, ed. The Memorial History of Boston. Vol. III, Boston: James R. Osgood, and Company, 1881.

III. Report of Selected Alternatives, Investigation and Evaluation of Railroad Tracks

REPORT OF SELECTED ALTERNATIVES

INVESTIGATION AND EVALUATION
OF
RAILROAD TRACK

CHARLESTOWN NAVY YARD
BOSTON NATIONAL HISTORICAL PARK



DENVER SERVICE CENTER

NATIONAL PARK SERVICE

DENVER, COLORADO

FEBRUARY 1980

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CHILDS ENGINEERING CORPORATION
WATERFRONT AND STRUCTURAL ENGINEERING

BOX 333
MEDFIELD, MASSACHUSETTS 02052
U.S.A.

National Park Service
Denver Service Center
755 Parfet Street
P.O. Box 25287
Denver, Colorado 80225

April 4, 1980

Attn: Mr. Scott Jacobs

Re: Work Directive 8-0054-79-05
Investigation and Evaluation of Railroad Track at
Charlestown Navy Yard.
Report of Selected Alternatives

Gentlemen:

We are pleased to present to you our final submission on the "Report of Selected Alternatives" for the above captioned project. This report incorporates portions of the 30% submission which has been included in the Appendix.

The report includes a summary of the conditions found and a set of prints has been included in the Appendix showing the rail system within the park and their condition. The selected alternatives are also presented in this report with advance cost estimates. Also included in the Appendix is a set of photographs illustrating the conditions found at the park.

As required by the National Park Service, a shelf life has been included within the report indicating the useful life of this report if no alternative is selected.

Respectively submitted,

RRB/lm
Enc:

Ronald R. Bourne

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CHILDS ENGINEERING CORPORATION

MEDFIELD, MASSACHUSETTS 02052

ENGINEERING INVESTIGATION AND EVALUATION OF RAILROAD TRACK

BOSTON NATIONAL HISTORICAL PARK

CHARLESTOWN NAVY YARD

INTRODUCTION

The following report was prepared by Childs Engineering Corporation under National Park Service Directive 8-0054-79-05. The purpose of this work directive is to document existing conditions and to investigate and evaluate the condition of the visible, above grade, standard gage railroad track system within the designated boundries of the Charlestown Navy Yard.

Tracks were first laid at the Charlestown Navy Yard in about 1863. Since that time, the tracks have undergone various changes until about 1964. The present limits of the tracks have not significantly changed since that time because of declining use of the railroad system within the Navy Yard. The historic report on the railroad track system has been reviewed and has established the above given information.

INVESTIGATION

The physical examination of the accessible rail, ties, switches, and connections was performed by structural engineers and technicians from Childs Engineering Corporation. The location of rails was established in the field using a convenient coordinate system. Rail elevations and track gage were also obtained. Physical examination of materials included direct measurement of rails and ties. Rail thickness measurements were obtained using an ultrasonic meter. Core samples of the timber crossties were taken where possible to determine the condition of the timber and the preservative treatment.

All information has been transferred from the field notes to the drawings which indicate existing conditions in both graphical and numerical format.

EXISTING CONDITIONS

The Park's accessible trackage, switches and other components of the railroad system were found to be in generally fair to poor condition.

Based on the present condition of the trackage, the rail system within the park was rated by its ability to meet Class 1 track as set forth by the Federal Railway Administration (FRA). For criteria governing Class 1 track geometry and structure refer to the FRA Track Safety Standards.

The use restrictions for Class 1 track are as follows:

1) Passenger service is limited to a maximum speed of 15 MPH and

2) Freight traffic is limited to a maximum speed of 10 MPH.

It should be noted that much of the trackage within the park is covered with pavement and therefore was inaccessible during our inspection. All reference to the condition of the track is therefore based on the assumption that the condition of inaccessible elements is similar to the conditions of the exposed elements.

Timber Crossties

An inspection of the timber crossties revealed that various degrees of deterioration had occurred. From this inspection, the following conditions were found:

Track 1: Ties were found to be rotted at Station 3+10 where an old timber traffic crossing exists.

Track 2: Ties were found to have 1" to 2" of softness at Station 0+04, 1+23, and 8+23. At Station 6+68 a tie was found to be rotted and at Station 7+10 tie was in good condition.

Track 3: Ties were found to be rotted and saturated with water at Station 0+04 and 1+23.

Track 3': No ties were inspected due to asphalt covering.

Track 4: Ties were found to have minor softness at Station 7+64.

Track 5: Ties were found to have 1" to 2" of softness at Station 3+66.5. At Station 3+05 tie was found in good condition.

Track 6: Ties were found to be in good condition at the rail contact points but had rot at the ends of each tie at Station 2+05.

Track 7: No ties could be inspected due to asphalt covering.

Track 8: Ties were found to have 1" of softness at Station 1+03.

Track 9: No ties could be inspected due to asphalt coverings.

Track 10: No ties were inspected (Pier 2).

Track 10':No ties were inspected (Pier 2).

Tracks 10 and 10' along with the southern end of Track 7 extend out onto Pier 2, an open timber pier which is in generally poor condition. To determine the structural capacity of these railways, the reader is referred to the report on the "Structural Engineering Investigation and Evaluation of the Bulkheads and Piers 1 and 2" presented to National Park Service in January 1979.

The ballast stone around the ties was found to be filled with

road sand and silt in many areas. This allows moisture to be trapped within this ballast material and allows the timber to be in continual exposure to moisture. In areas where the ballast stone was found to be cleaner, the crossties were in better condition. It can be expected that in areas with this moisture retention, a majority of crossties have some deterioration even those portions under the asphalt.

Core samples were taken in several areas to aid in determining crosstie conditions and to determine the degree of treatment of the ties. The extent of treatment of individual ties cored varied but generally found to be 1½ inches although one tie was found to have only surficial treatment and no penetration of preservative. The type of treatment was found to be creosote in all the ties sampled. In some of the ties which were tested moisture was found to have penetrated one to two inches.

Switches

All railway switches were inspected with the exception of Switch B which had the cover plate welded shut. Of the switches inspected, all appear to be operable. The space between the switching rails on all the switches, except Switch K on Pier 2, was filled with road side sand and stone ballast. All switches were in need of lubrication and the switching lever for Switch I is corroded to a point where it should be replaced if it is to be used. In attempting to operate the switches all were found movable to the point where the material between the rails prevented closure. It is felt that these switches can be made operable but will require maintenance and some adjustment.

Some switches were found to be fasten to ties which have rotted.

In other areas, track switches were found to be missing as was the condition at the track intersection of Tracks 6 and 8, and at 8 and 9. The switch at the track intersection of 5 and 6 is thought to be missing but pavement covers this area and verification was not possible. At Switch E from Tracks 2 and 5 the switching lever is missing although the rest of the mechanism remains.

Rails

Currently there are several sections of railroad track which are not physically connected to the rest of the Park trackage. This is true of Tracks 7, 10, and 10' which exist on the East side of Dry Dock No. 1 and on Pier 2. To connect these again to rest of trackage would require going outside the Park boundaries and crossing over Boston Redevelopment Property. Track 8 is separated from the rest of the park due to the fact the switch to Track 6 is missing and Track 9 is separated from Track 8 for the same reason.

At present there are several locations where segments of rails are missing in the track system. Outside the park boundry at the west entrance to the site, there is a six inch segment of rail missing. Until this rail is replaced no stock can roll into the park. There is also a short length of rail missing at the entrance to the railroad scale which prohibits rail traffic on the scale. It was found on Tracks 7 and 9 that they both share a common rail with the crane track around Dry Dock No. 1. The crane tracks are currently active in this area.

The rails were also checked for gage, rail end mismatch, and

alinement. Measurements of the existing rails were taken where ever possible. Some track was found to be worn but most trackage was found to be useable. Where excessive rail end mismatch was found existing condition was noted on the drawings. Gage readings were taken every 30 feet and can also be found on the drawings. Gage and alinement appear to be within tolerable limits except for gage at the following locations:

Track 3, Sta. 5+79.50, Gage: 4'-9 7/8"
Track 2, Sta. 9+30.45, Gage: 4'-7 7/8"

Acceptable limits of gage: 4'-8" to 4'-9 3/4"

Rail flaking and pitting was found in several areas where rails were covered and exposed to constant moisture. Rail spikes and tie plates were found to be in generally good condition. Tracks 3, 5, and 6 were found to have no tie plates. Joint bars which are used to connect rails where they butt against each other were also found to be in good condition except those located on Pier 2 which have undergone substantial corrosion.

General

At the entrace to the Park, Track 3 incorporates a sharp curve where it turns onto Pier 1. This curve restricts the size of rolling stock which can safely negotiate this turn. As this track is the means by which all rolling stock enters it therefore limits what can enter the entire park. The longest car that can maneuver this restriction would be 65' car having a ridgid underframe. Cars having the more modern cushion underframe system would have a greater restriction. Due to the great variability in cushion underframe designs the manufacturer should be consulted before such a car is allowed to negotiate the curve.

From existing plans, it appears that from Sta. 2+75 to 6+75 on Track 3 has been constructed more recently. Although the track road bed was not able to be physically inspected in this area it is felt that it probably could meet Class 1 requirements. This is not true in the case of Track 3 from Sta. 0+00 to 2+75. In this area rotten ties were found and no tie plates were used during its construction.

PEDESTRIAN HAZARDS

During our investigation of the tracks in the Park the question of public safety was considered. Due to the nature of the Park and its openess to the public, hazards must be considered. These hazards include gaps between rails, at switches, and gaps between guard rails and live rails. These gaps are sufficiently large that spike heels and even small feet (young children) could slip into the gaps resulting in ankle injuries. Other hazards include areas with exposed ballast or fill (not paved) where spiked heels could also get caught and cause ankle injuries. However, these conditions cannot be altered if the railroad tracks are to be operational. Railroad yards are not designed for casual pedestrian use.

One way of reducing the potential hazard is to restrict pedestrians such that they will not encounter active trackage. Nonactive tracks could be paved flush to provide the historical signifigance of the track but also remove the hazard associated with open rails. The hazard of exposed ballast stone could be eliminated by paving these areas.

Unfortunately the restricting of the public from the active trackage would alter the basic concept which is to leave

it as it was during its normal operation and to allow as much freedom as possible to the visitors.

COMMENTS

To determine track conditions at the Scale House (Building #19) please refer to the "Report of Selected Alternatives - Scale House" as presented to the National Park Service on January 1980.

It has been anticipated by the Park Service that the future use of the park railroad system would be limited. The cars involved would be lightweight fixed stock (ca. 1950) and there would be limited movement within the park. A locomotive will probably not be involved but if one is it would be a diesel switcher. No internal transportation system using the existing railroad tracks is currently being proposed.

CONCLUSION

The overall condition of the railroad system within the park seems to be in fair to poor condition. Areas of trackage are useable but repairs will need to be made. Essentially no repair work has been done on the railroad system for about 16 years. It should be realized that for the anticipated use of the track the system does not need to meet the standards it was originally designed and built to.

At present the Park Service does not intend to fully revamp the railroad system. Their present intent is to use the existing track for lightweight fixed stock with minimal movement of rail cars within the park.

Currently at the Park, there are tracks available to accomplish this. Unfortunately these tracks are not accessable due to structural dificiencies of trackage leading to them. This access problem could be overcome by the transfering of the lightweight stock by tractor trailer to the Park and lifted by crane(s) into its final position. Potential pedestrian hazards could be eliminated by the paving flush of all unused trackage. This option is Alternative I of the railroad repair alternatives. Useable trackage under this alternative is Track 1; Track 2; Track 3, Sta. 2+75; and portions of Tracks 4, 5, and 6.

If there is a future requirement that rolling stock enter the Park, then the track could be repaired to the degree that is necessary. Alternative II would call for the repair of Track 3 up to and including Switch A. This would give approximately 400 feet of useable track and would include the sharp curve which would restrict railroad car sizes to 65 feet in length. Alternative IIb would call for the repair of the remaining portion of Track 3. This repair would be extensive and it is recommended that this portion be given a low priority for repair.

Alternative IIIa calls for the repairs necessary to allow rail traffic up to but not including the Scale House. This would include additional work to Track 3 to allow cars to be switched from Track 3 to 3'. Minor repairs as needed on Track 3' and 2 as well as repair to switches as necessary.

Alternative IIIb is the additional cost of extending Track 2 in front of the Scale House and to the Park property boundary.

The cost of extending other portions of track is broken down under Alternative III. The repair cost of Track 6 does not include the cost of Track 5 from Switch D to Switch L and the repair cost of Switch D. All other options are directly additive to Alternative IIIa.

Tracks 7 and 9 have not been included due to each having a common rail with the still active crane rail system. Because of this dual function rail Tracks 7 and 9 would not be able to fit into the National Park Service anticipated plans of using existing trackage for lightweight fixed stock.

Track 8 has not been included due to its short length. It is felt that its possible limited use would not warrent the cost of repair.

Tracks 10 and 10' have been omitted from the cost estimates because their repair is directly involved with the repair of Pier 2 which has been evaluated in the Report entitled "Structural Engineering Investigation and Evaluation of the Bulkhead and Piers 1 and 2".

Alternative V calls for the installation of approximately 400 feet of track between Sta. 6+00 of Track 3 and Sta. 6+90 of Track 2 (SK417-79-1). This would allow conventional railroad cars to have access to the park. It is recommended that this alternative be given a low priority due to the anticipated using of the railroad system within the Park for lightweight fixed stock (ca. 1950). Railroad cars of this era should not have difficulty in manuvering the sharp curve of Track 3. If more modern cars are to enter the yard then problems of negotiating the curve can be expected.

A cost for hazard removal for pedestrian hazards has been included in Alternative I, IIa, and IIIa. These costs have been included to cover costs of filling in rails and switches on tracks not to be utilized and the paving over of areas which currently have exposed ballast.

The conditions and therefore the recommended repairs noted in this report would remain accurate for a period of up to five (5) years. After a five (5) year period another inspection should be made to determine any change in conditions.

ALTERNATIVE COST ESTIMATES

Alternative I

Do no repairs to existing trackage. Fixed stock to be trucked in and placed by crane onto their final location. Pedestrian hazard removal where possible.

Hazard Removal Cost	$18,500.00

Alternative IIa

Repair of Track 3 to allow rolling stock to enter yard to Sta. 2+75 and removal of pedestrian hazards.

Repair Cost	$ 8,700.00
Hazards Removal Cost	$15,900.00

Alternative IIb

Additional cost to repair Track 3 from Sta. 0+00 to 2+75. (Additive to Alternative IIa)

Repair Cost	$25,000.00

Alternative IIIa

Cost to repair Tracks 3, 3' and 2 to Station 9+00 of Track 2.

Repair Cost	$32,500.00
Hazard Removal Cost	$12,000.00

Alternative IIIb

Additional cost to repair track to the Scale House (Addition to Alternative IIIa)

Repair Cost	$ 3,100.00

ALTERNATIVE COST ESTIMATES (cont'd)

Alternative III

Additional costs to repair Tracks 1, 4, 5 and 6 to allow their use for rolling stock. (Additive to Alternative IIIa).

Track 1	$ 8,000.00
Track 4;5, (Sta. 2+95 to 4+36)	$ 4,500.00
Track 5 (Sta. 0+00 to 2+95)	$ 2,500.00
Track 6	$ 4,900.00

Alternative IV

Installation of approximately 400 of new track between Track 3 and Track 2. Work includes all excavation ballast, ties, tracks, switches, and pavement necessary for installation.

Installation Cost	$98,000.00

APPENDIX

RAILROAD SURVEY PHOTOGRAPHS

Boston National Historical Park

Photo No.	Location	Description
1	Sta 1+30, Track 3	Looking SE at the terminal of Tracks 2 & 3.
2	Sta 2+85, Track 3	Covered Switch A at Tracks 3 & 3'.
3	Sta 3+09, Track 3	Looking west along Track 3 - note weeds growing between double rails.
4	Sta 6+70, Track 3	Looking west where Track 3 runs beyond Park Service Property line.
5	Sta 7+05, Track 3	Looking west where 6" segment of Track is broken out.
6	Sta 2+85, Track 3	Switch A for Tracks 3 & 3'.
7	Sta 3+65, Track 2	Covered Switch B at Tracks 2 & 3'.
8	Sta 6+90, Track 2	Looking south along Track 2 at Switch C being dug out (left to right: Tracks 5, 1&2).
9	Sta 7+10, Track 2	Looking north along Track 2 as it approaches Scale House (left to right: Tracks 4, 2 &5).
10	Sta 8+20, Track 2	Switch F for Tracks 2 & 4.
11	Sta 9+00, Track 2	Looking NE toward Scale House and live and dead rails of Track 2; Switch G is foreground.
12	Sta 10+65, Track 2	Looking NE where Track 2 runs beyond Park Service property line.
13	Sta 6+65, Track 2	Switch C for Tracks 1 & 2.
14	Sta 7+00, Track 1	Looking NW along Track 1 (left to right: Tracks 2, 1 & 5).
15	Sta 4+95, Track 1	Looking NW along Track 1 toward ramp over steam pipes.
16	Sta 4+60, Track 1	Looking SE along Track 1 toward Pier 1.
17	Sta 7+20, Track 2	Switch E for Tracks 2 & 5 (northside); Switch mechanism gone.
18	Sta 7+08, Track 2	Switch D for Track 2 & 5 (southside).
19	Sta 3+00, Track 6	Looking SE along Tracks 5 & 6; Track 5 is paved over, on the right.
20	Sta 1+60, Track 6	Looking SE where Track 8 splits off to left from Track 6 (switch is gone).
21	Sta 0+00, Track 9	Terminus of Track 9 on Pier 1.
22	Sta 3+90, Track 9	Looking north along Track 9 at point where Track 8 (on left) crosses Crane Rail & joins Track 9 (on right); switch is gone.

Railroad Survey Photographs

(cont'd)

Photo No.	Location	Description
23	Sta 6+90, Track 9	Looking SE along Track 9 at point where Track 9 merges with Crane Track.
24	Sta 5+65, Track 7	Looking NW along Track 7 at point where it breaks away from Crane Track and veers right (Switch I).
25	Sta 5+86, Track 7	Corroded Switch I for Track 7 and Crane Track
26	Sta 5+45, Track 7	Looking east toward Switch J; Track 10 goes straight and Track 7′ veers right.
27	Sta 5+32, Track 7	Switch J for Tracks 7 & 10′.
28	Sta 0+00, Track 7	Looking NW up Pier 2 from Track 7 terminus.
29	Sta 0+85, Track 10	Looking NW off Pier 2 at point where Tracks 10′ (to left) and 10 (straight) merge (Switch K covered).
30	Sta 0+75, Track 10	Switch K for Tracks 10 and 10′.
31	Sta 0+00, Track 10	Looking NW up Pier 2 from Track 10 terminus.
32	Track 3	Example of rail out of alignment.
33	Sta 1+45, Track 10	1½" gap in east rail and corroded track connection underneath.
34	Track 7	Example of rail repair: rail on right of gap built up with welding.
35	Track 4	Using calipers to measure rail dimensions.
36	Sta 2+70, Track 6	Coring bit and core from tie, used to check penetration of preservative.


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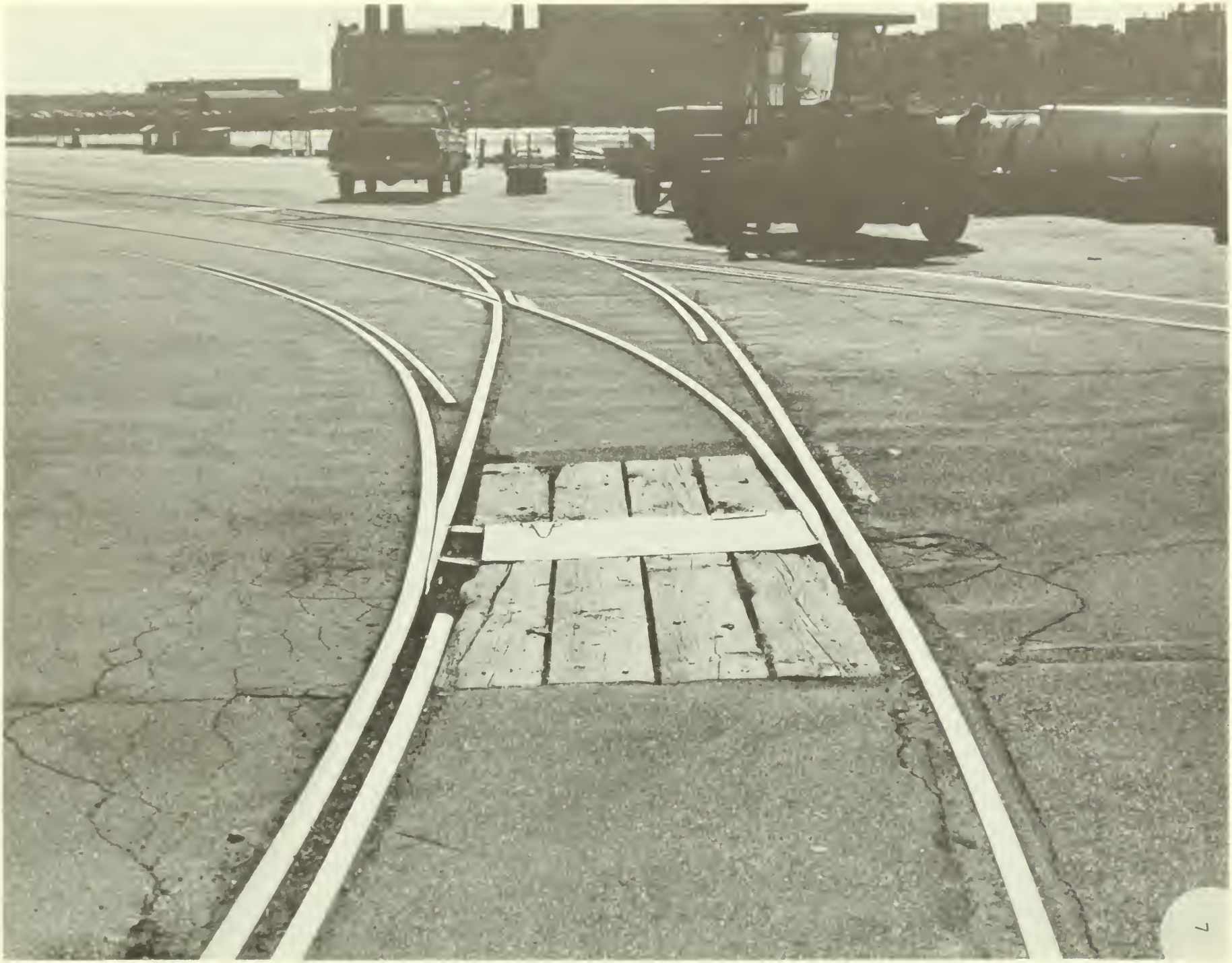

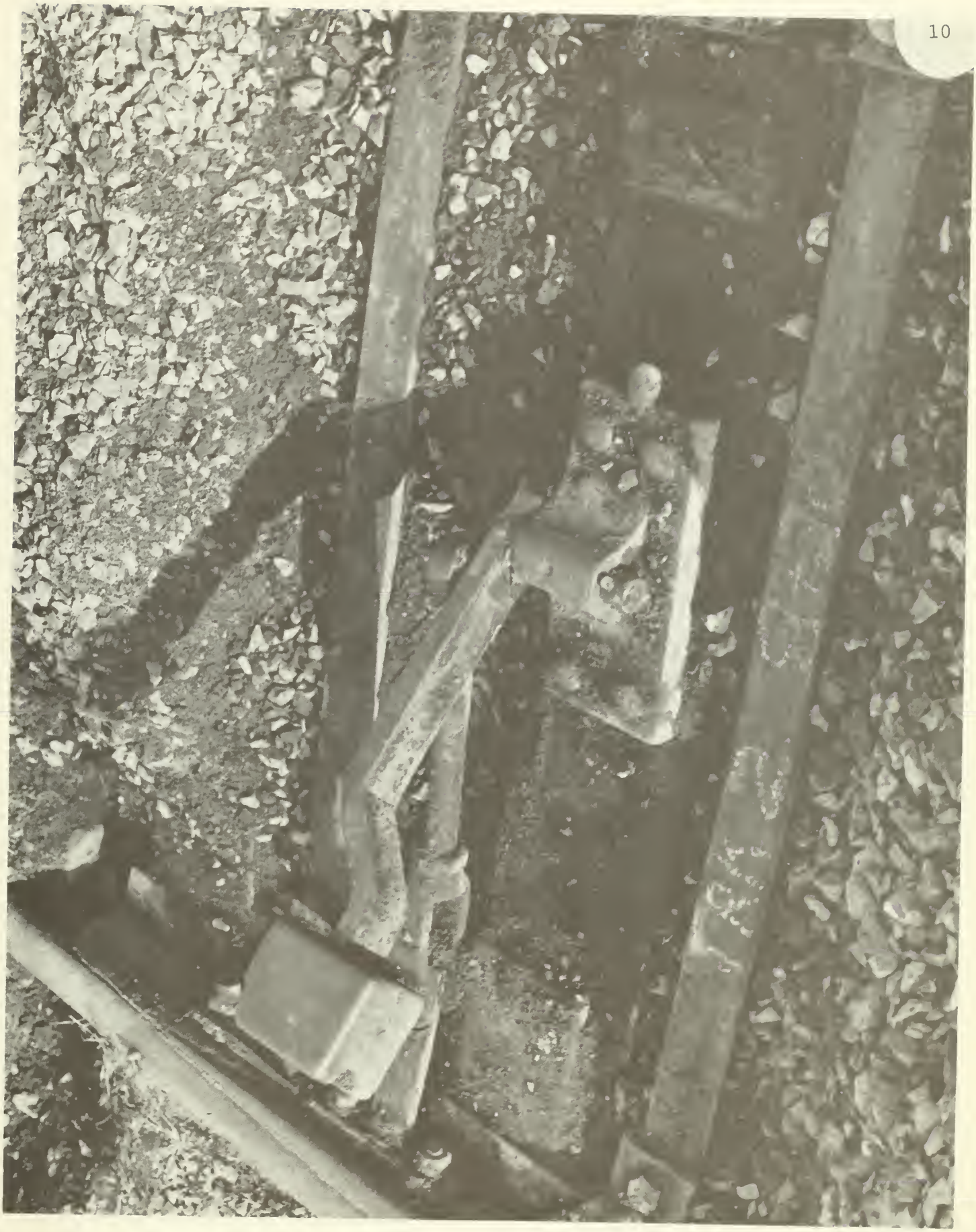

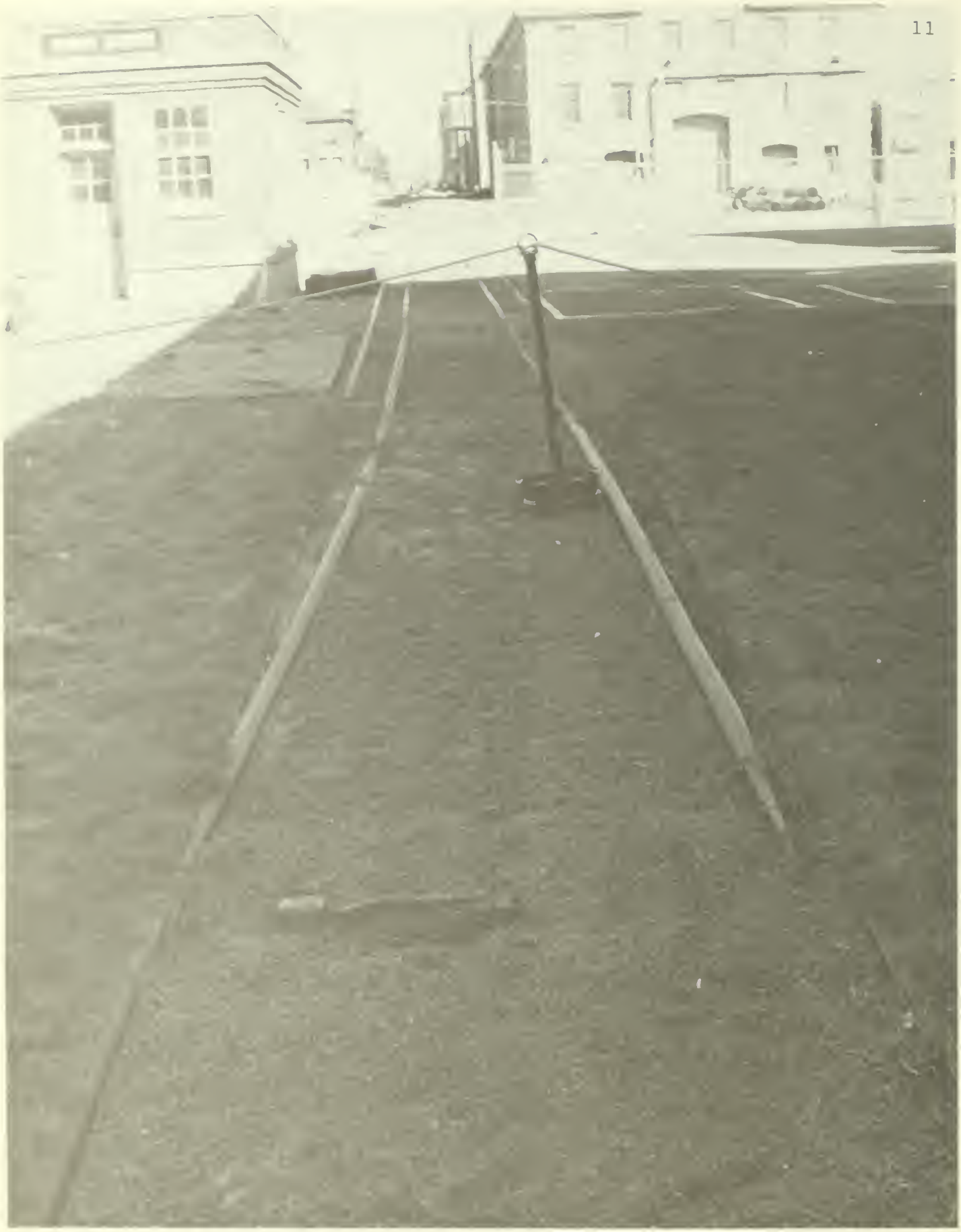

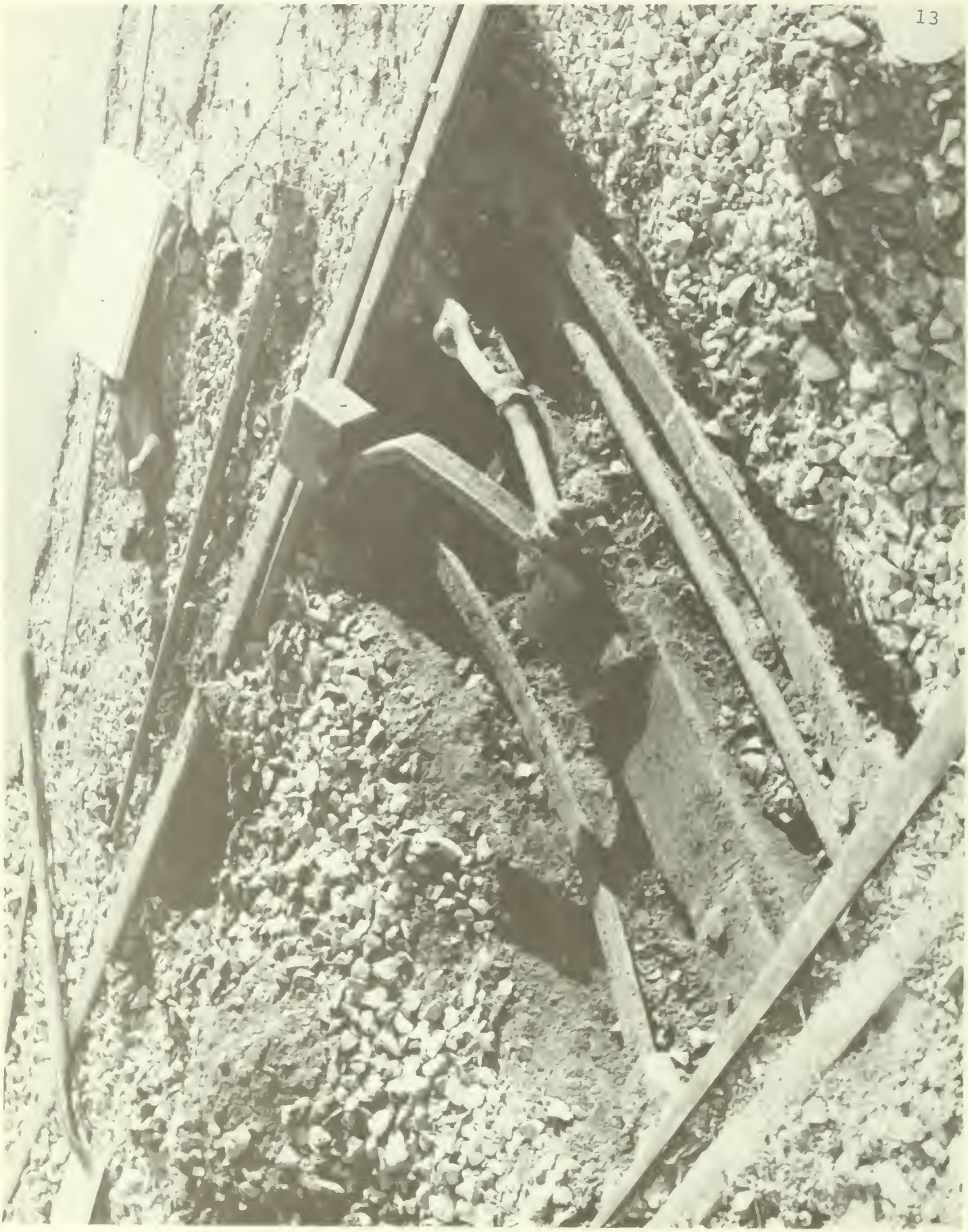

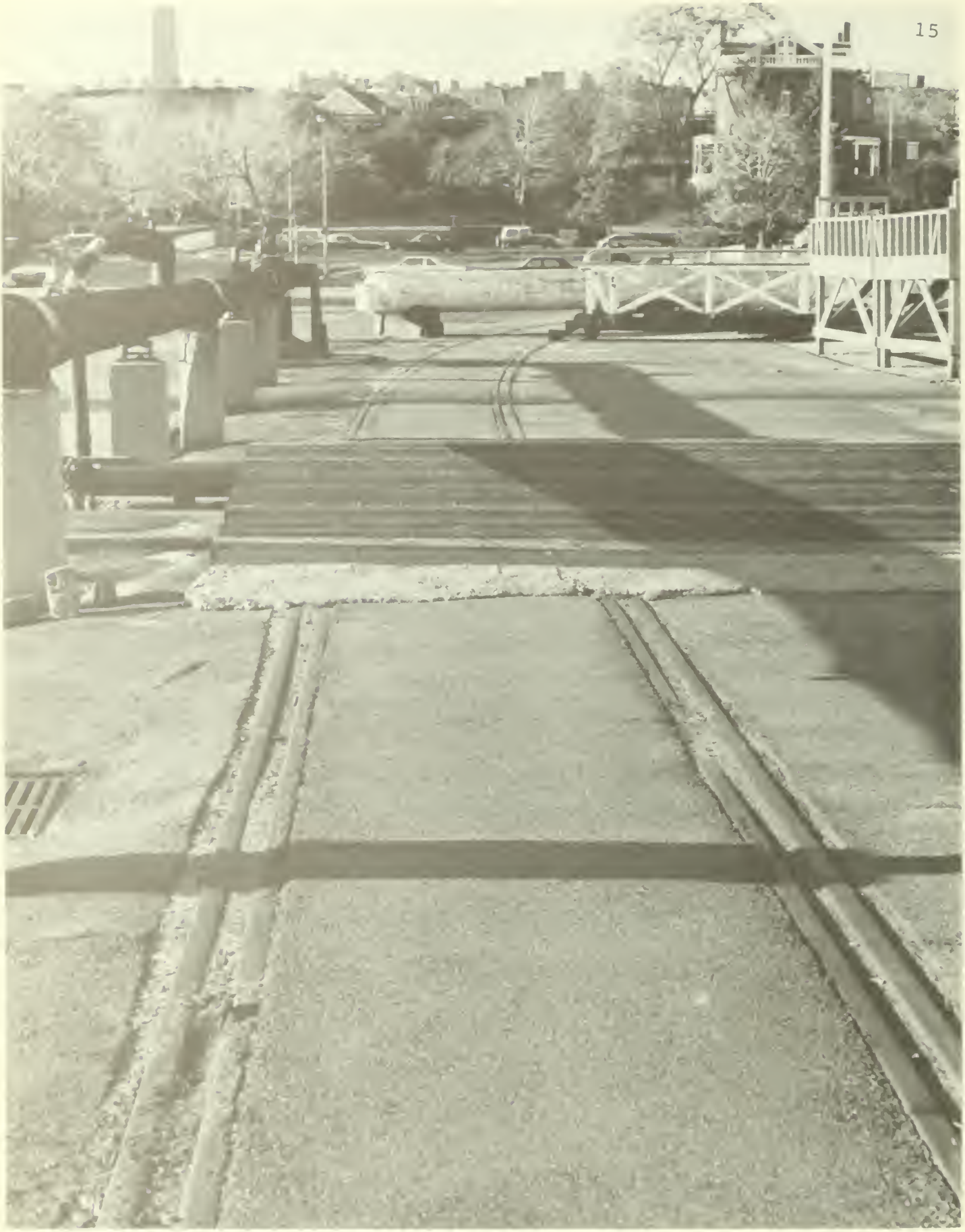

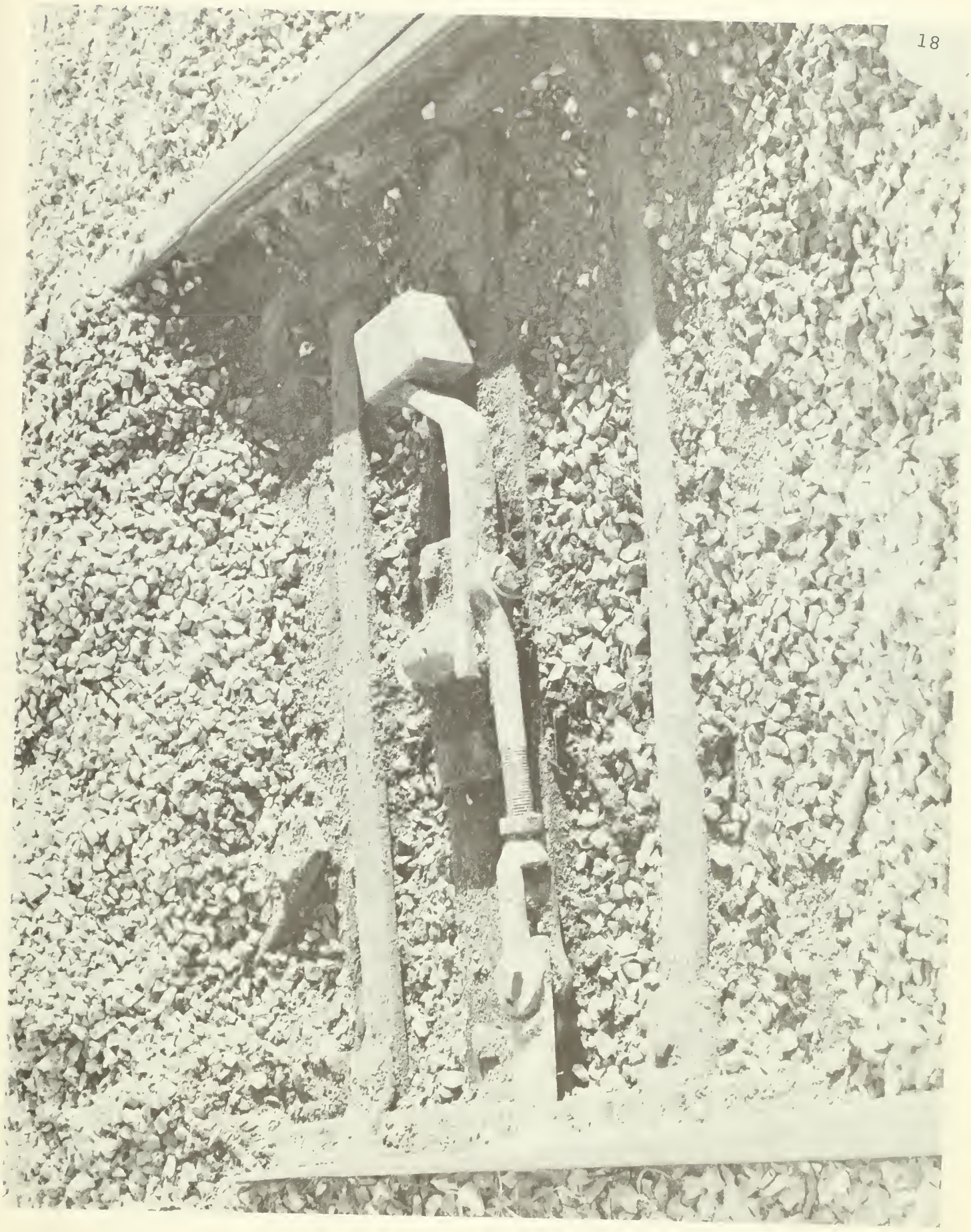

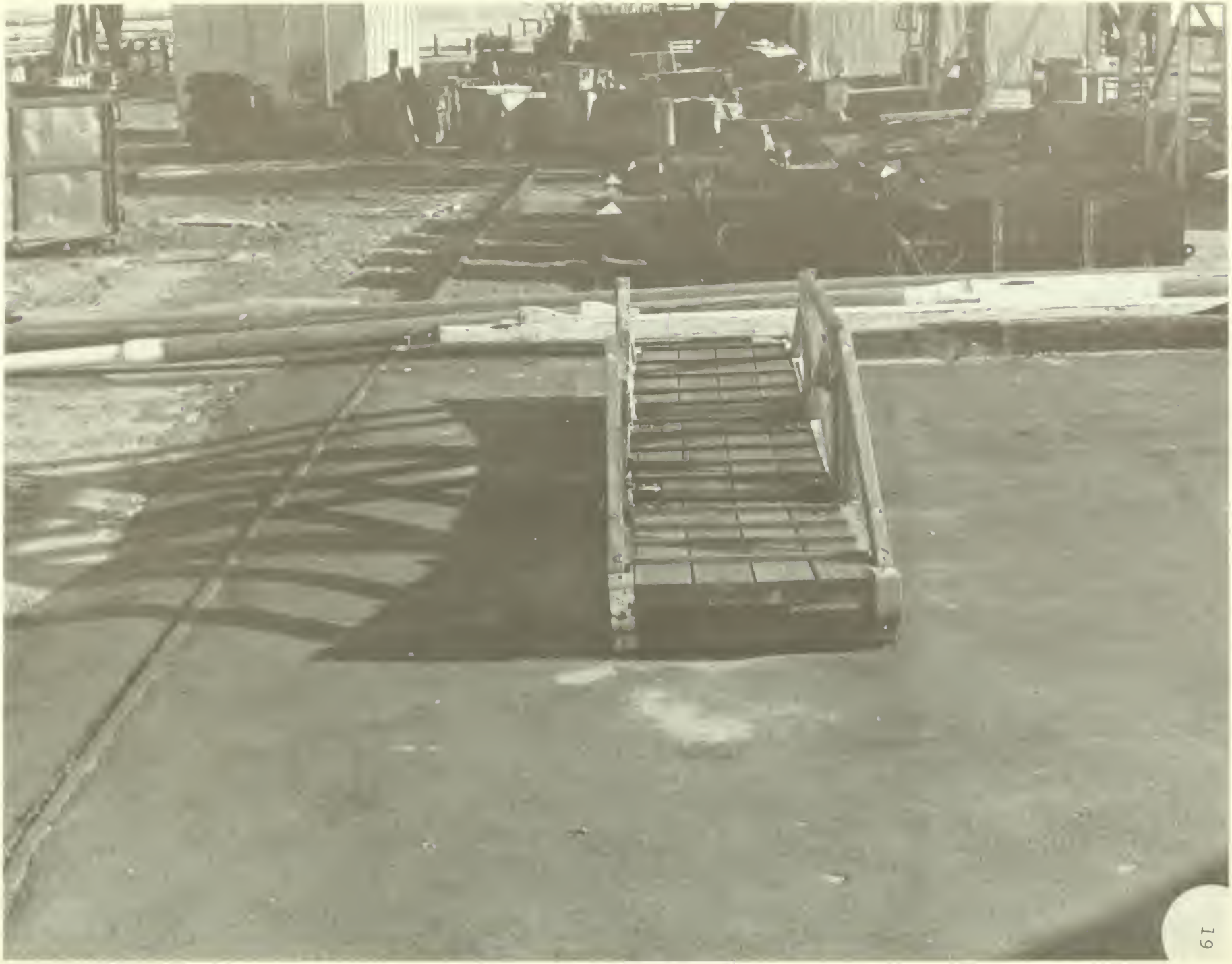

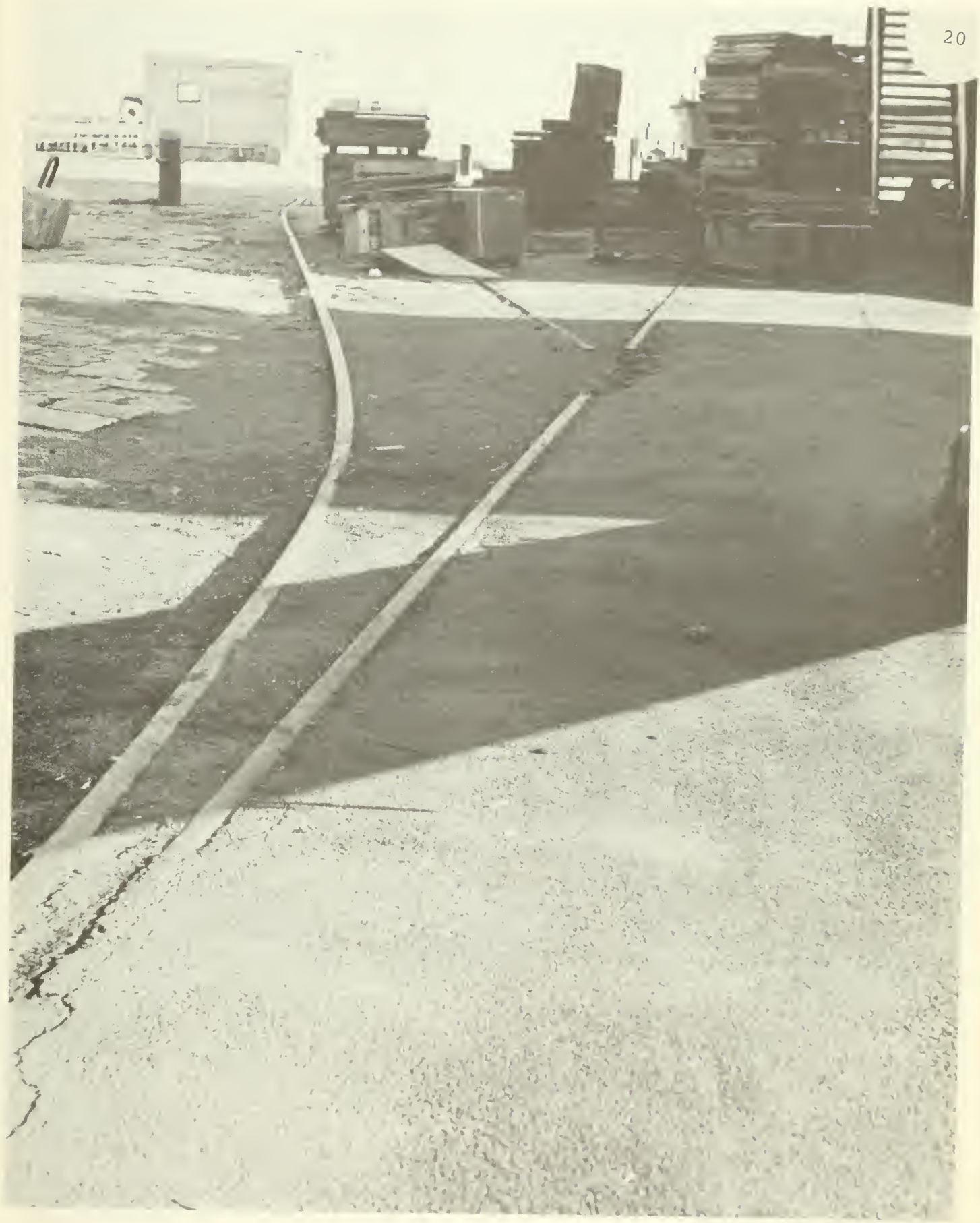

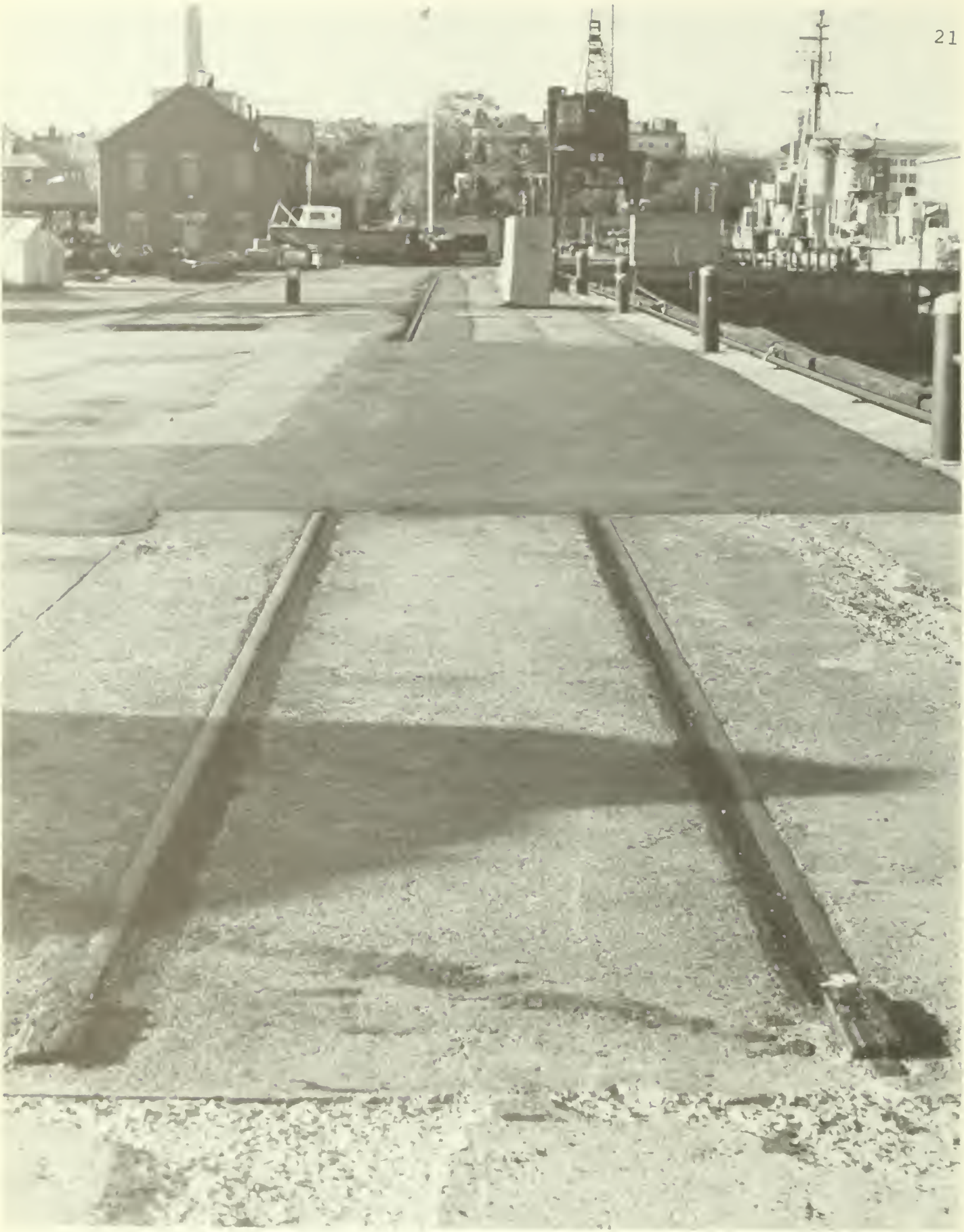


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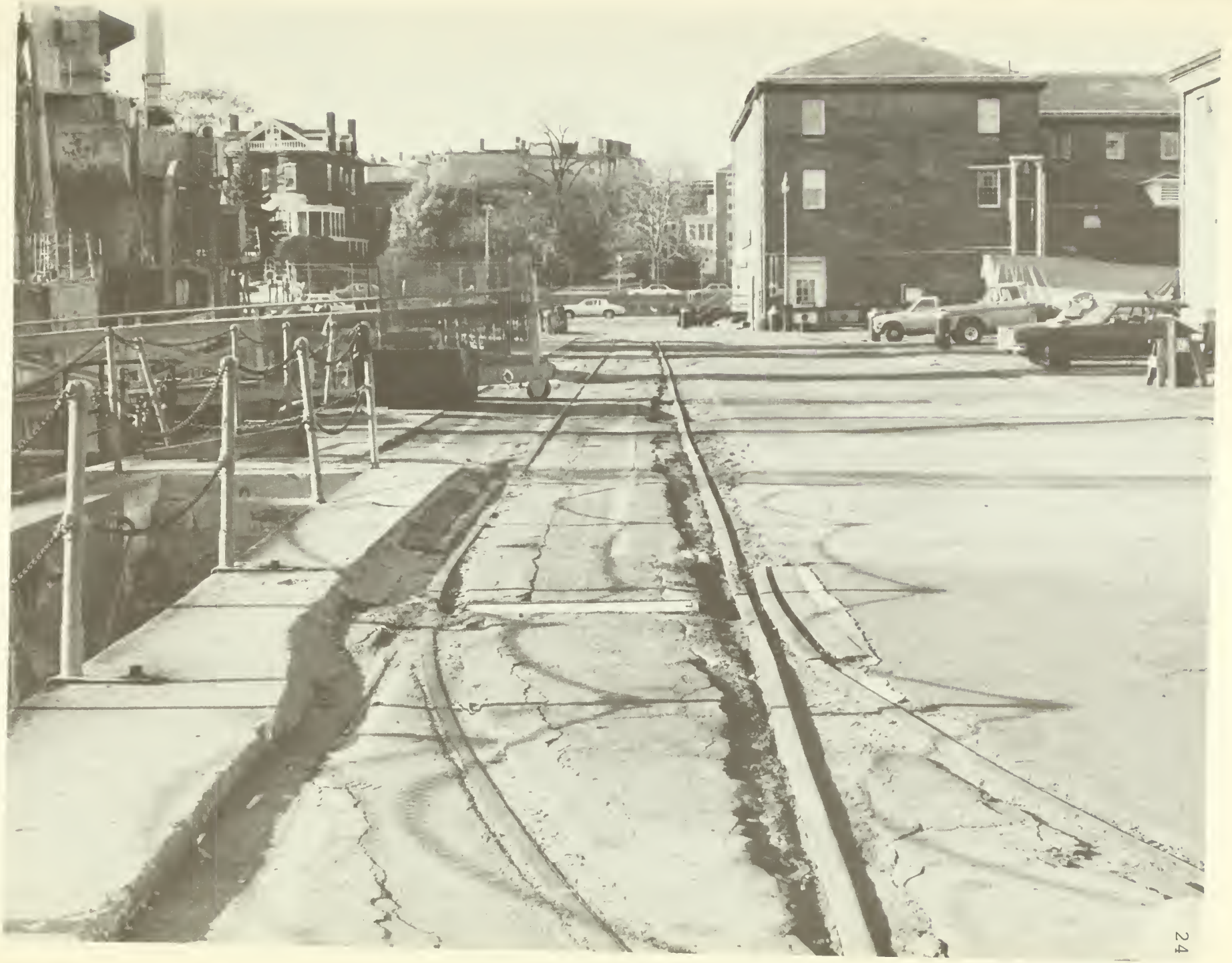


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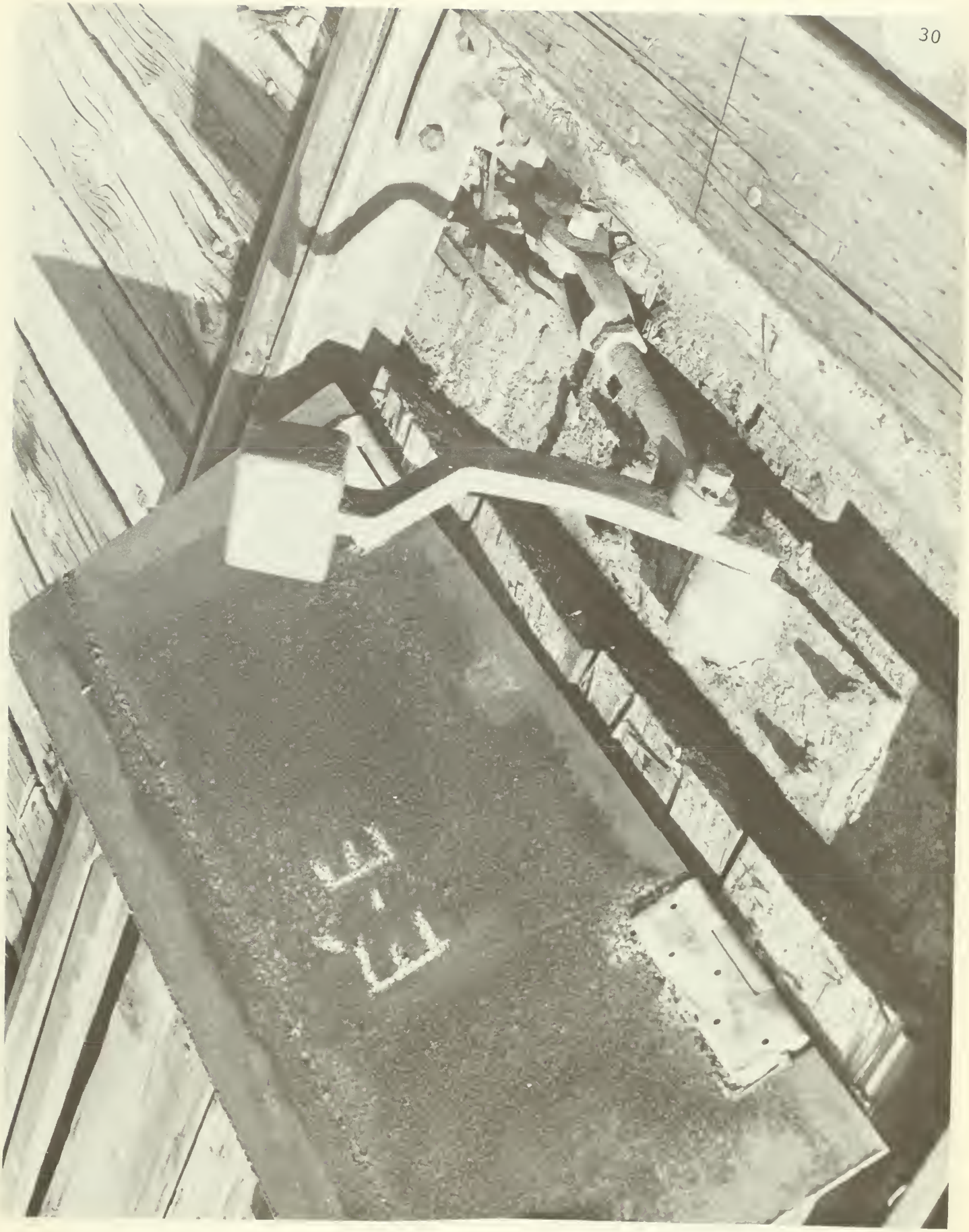
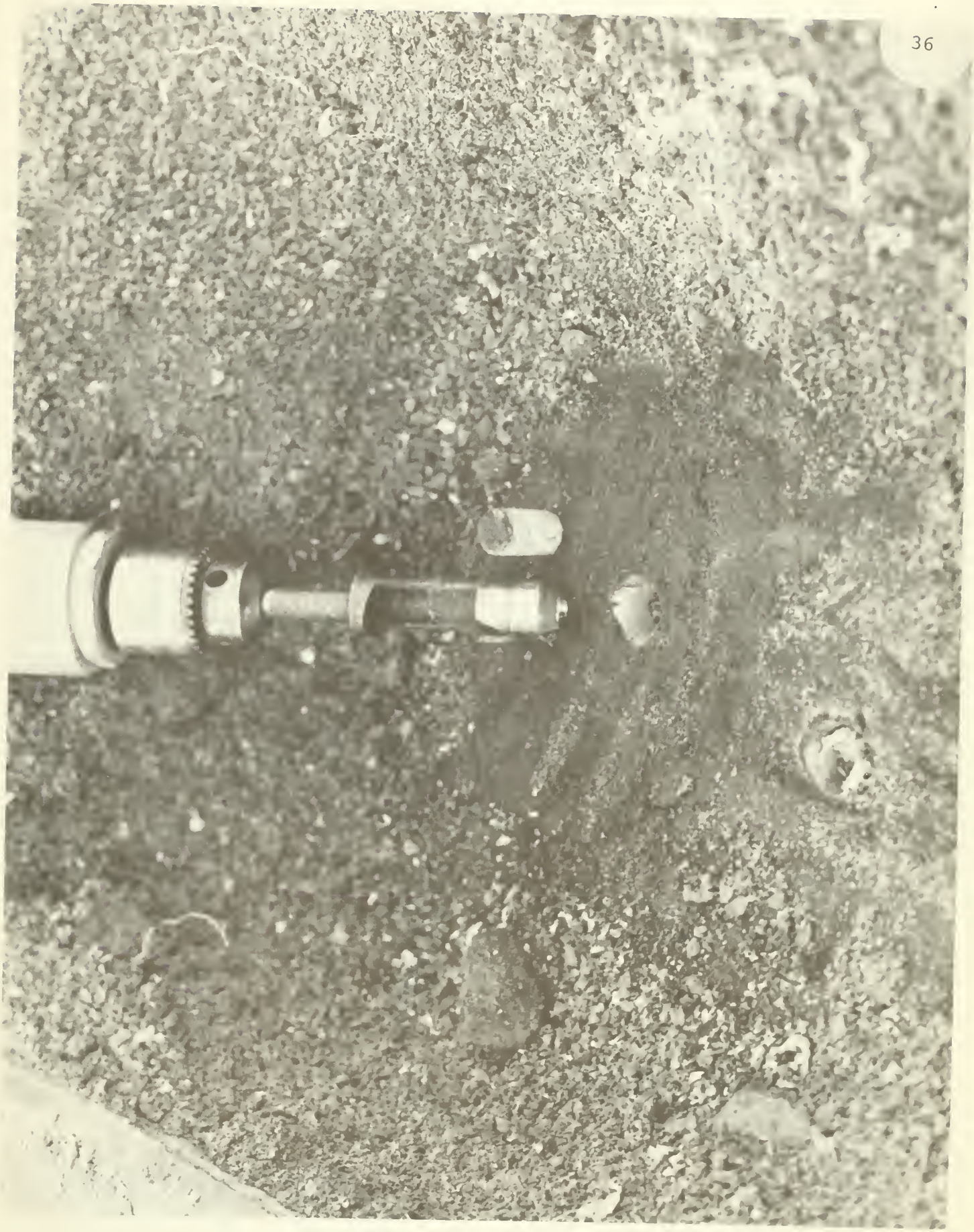
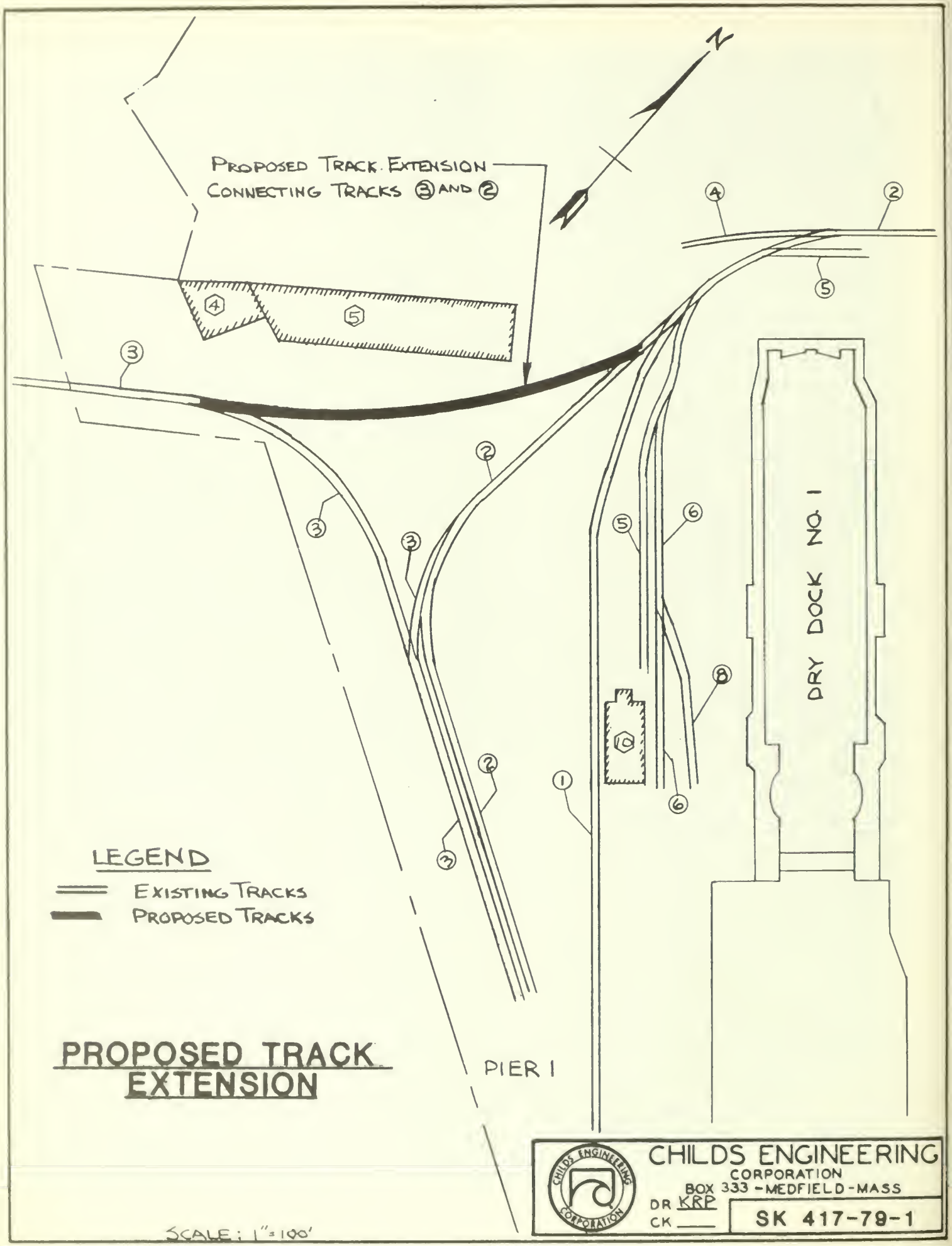






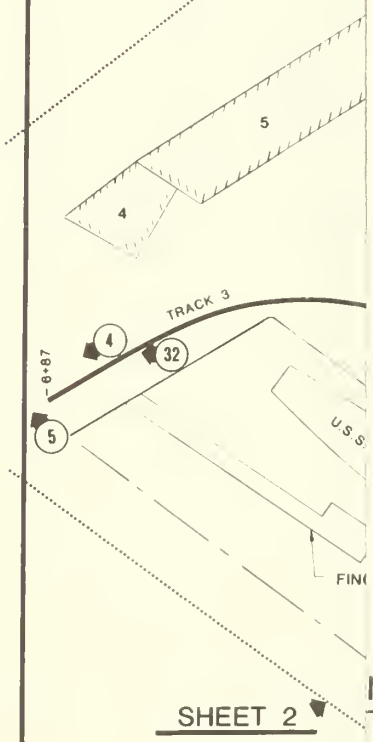
Charrette 10347

VESTIGATION AND

F RAILROAD TRACK

WN NAVY YARD

AL HISTORICAL PARK



ITE PLAN

SHEET 2

Photo Designation

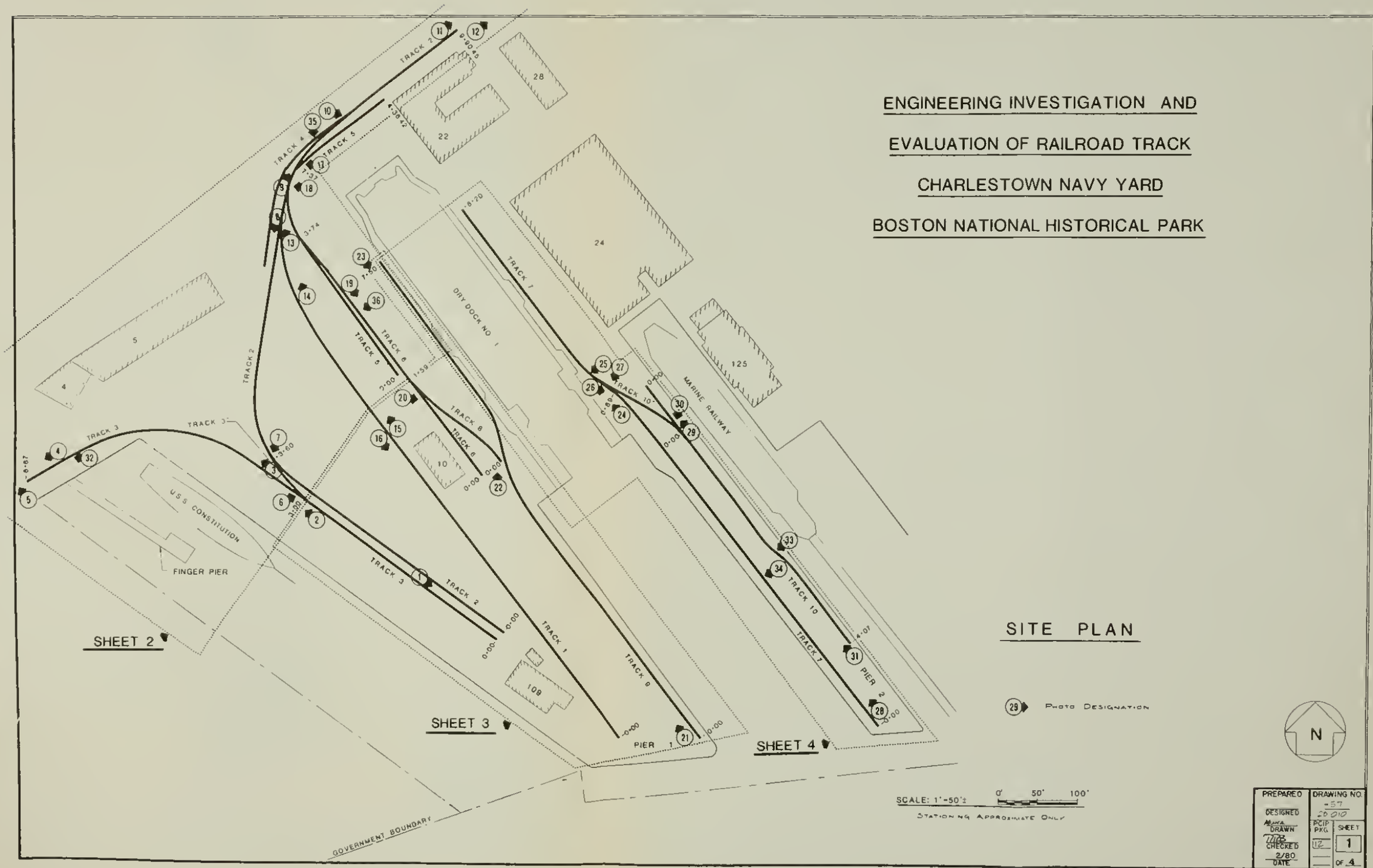
N

50' 100'

ATE ONLY

PREPARED	DRAWING NO.
DESIGNED	457
DRAWN	20,010
CHECKED	PCIP PKG. 12 / SHEET 1
DATE 2/80	OF 4

ENGINEERING INVESTIGATION AND EVALUATION OF RAILROAD TRACK CHARLESTOWN NAVY YARD BOSTON NATIONAL HISTORICAL PARK



SITE PLAN

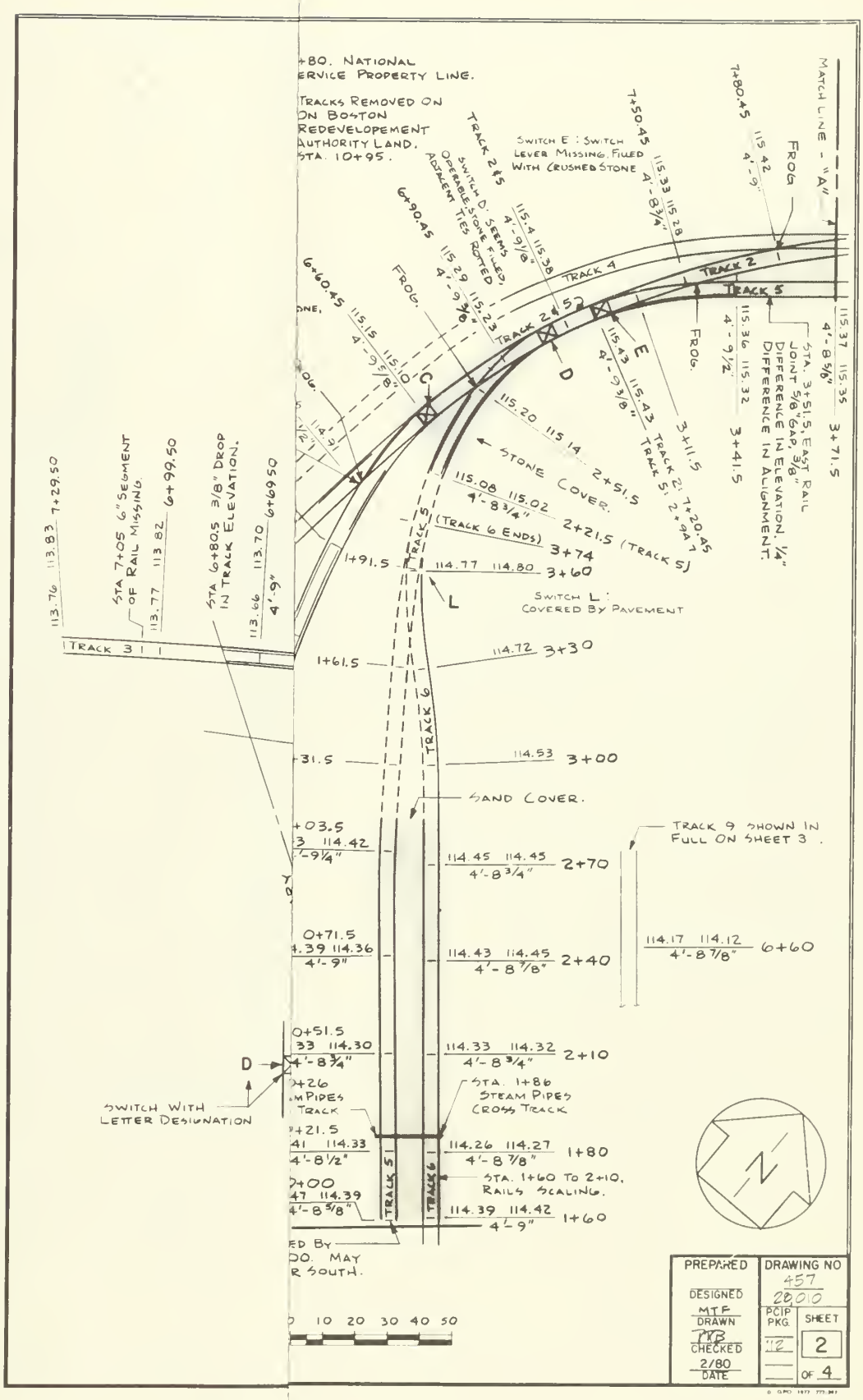
29 Photo Designation

N

SCALE: 1"=50'± 0' 50' 100'

Stationing Approximate Only

PREPARED	DRAWING NO.
DESIGNED	-57
Mona DRAWN	20010
MJB CHECKED	RCIP PKG. 12 — SHEET 1
2/80 DATE	OF 4



PREPARED	DRAWING NO
DESIGNED MTF	457 2010
DRAWN MTF	PCIP PKG. 112
CHECKED	SHEET 2
2/80 DATE	OF 4

BLDG #22
3 STORY GRANITE BLOCK

BLDG #5
3 STORY BRICK

STA. 9+75 RAILROAD SCALE BEGINS.

STA 10+25 RAILROAD SCALE ENDS. PAVEMENT BEGINS.

STA 10+80. NATIONAL PARK SERVICE PROPERTY LINE.

TRACKS REMOVED ON ON BOSTON REDEVELOPEMENT AUTHORITY LAND. STA 10+95.

SCALE HOUSE

STONE COVER.

TRACK ENDS.

STA. 9+68 BOTH RAILS MISSING 3' SEGMENT OF TRACK ON SOUTH RAILS.

STA 9+12, SWITCH FILLED WITH STONE.

STA 8+20 SWITCH F. APPEARS OPERABLE FILLED WITH CRUSHED STONE

STA 3+71.5 TO 3+86.5 EAST RAIL MISSING

STA 7+05 6" SEGMENT OF RAIL MISSING

STA 6+80.5 3/8" DROP IN TRACK ELEVATION.

STA 5+95 3/4" GAP IN SOUTH RAIL

STA 5+12. 5/8" GAP IN NORTH RAIL.

STA 3+10 TO 7+30. GRASS AND WEEDS ARE GROWING BETWEEN DOUBLE RAILS, BOTH SIDES.

STA 4+59.1" GAP IN SOUTH RAIL

STA 4+12. 5/8" DIFFERENCE IN ALIGNMENT ON NORTH RAIL.

STA 3+47. 1/4" DIFFERENCE IN ALIGNMENT ON NORTH RAIL.

STA 3+69.50 3/4" GAP

STA 3+60. 1" GAP IN SOUTH RAIL

STA 2+92. 1/2" GAP IN SOUTH RAIL.

STA 4+43 WEST RAIL 1/4" DIFFERENCE IN ALIGNMENT. 1/4" DIFFERENCE IN ELEVATION

STA 4+50 EAST RAIL 3/8" DIFFERENCE IN ALIGNMENT. 1/4" DIFFERENCE IN ELEVATION

STA 5+25 WEST RAIL 5/8" DIFFERENCE IN ELEVATION

STA 5+43 SCALING ON WEST RAIL.

STA 6+32, SCALING ON EAST RAIL.

STA 7+20 TO 3+33. SAND BETWEEN DOUBLE RAILS, BOTH SIDES.

STA. 4+50 TO 6+00 RAILS EXHIBIT SCALING ALONG INSIDE EDGES.

STA 5+17 TO 5+45 TIMBER RAMP OVER STEAM PIPING

STA 0+26 STEAM PIPES CROSS TRACK.

STA 1+86 STEAM PIPES CROSS TRACK.

STA 1+60 TO 2+10. RAILS SCALING.

STA. 3+51.5, EAST RAIL JOINT 5/8 GAP. 3/8" DIFFERENCE IN ELEVATION. 1/4" DIFFERENCE IN ALIGNMENT

SWITCH C SWITCH SEEMS OPERABLE FILLED WITH STONE. ADJACENT TIES ROTTED

SWITCH D SEEMS OPERABLE STONE FILLED. ADJACENT TIES ROTTED.

SWITCH E SWITCH LEVER MISSING FILLED WITH CRUSHED STONE

SWITCH L COVERED BY PAVEMENT

SAND COVER.

TRACK 9 SHOWN IN FULL ON SHEET 3

TRACK 5 COVERED BY PAVEMENT AT STA. 0+00 MAY EXTEND 50' FURTHER SOUTH

EDGE OF GRANITE CURB.

GOVERNMENT BOUNDARY

EDGE OF STEEL SHEET PILING PER 1

LEFT TRACK ELEVATION — RIGHT TRACK ELEVATION. 114.83 114.79 4+50 — TRACK GAGE. — STATION.

SWITCH WITH LETTER DESIGNATION

TRACK WITH DOUBLE RAILS

AREA OF TRACK FILLED WITH SAND OR STONE.

AREA OF TRACK COVERED BY PAVEMENT

LEGEND

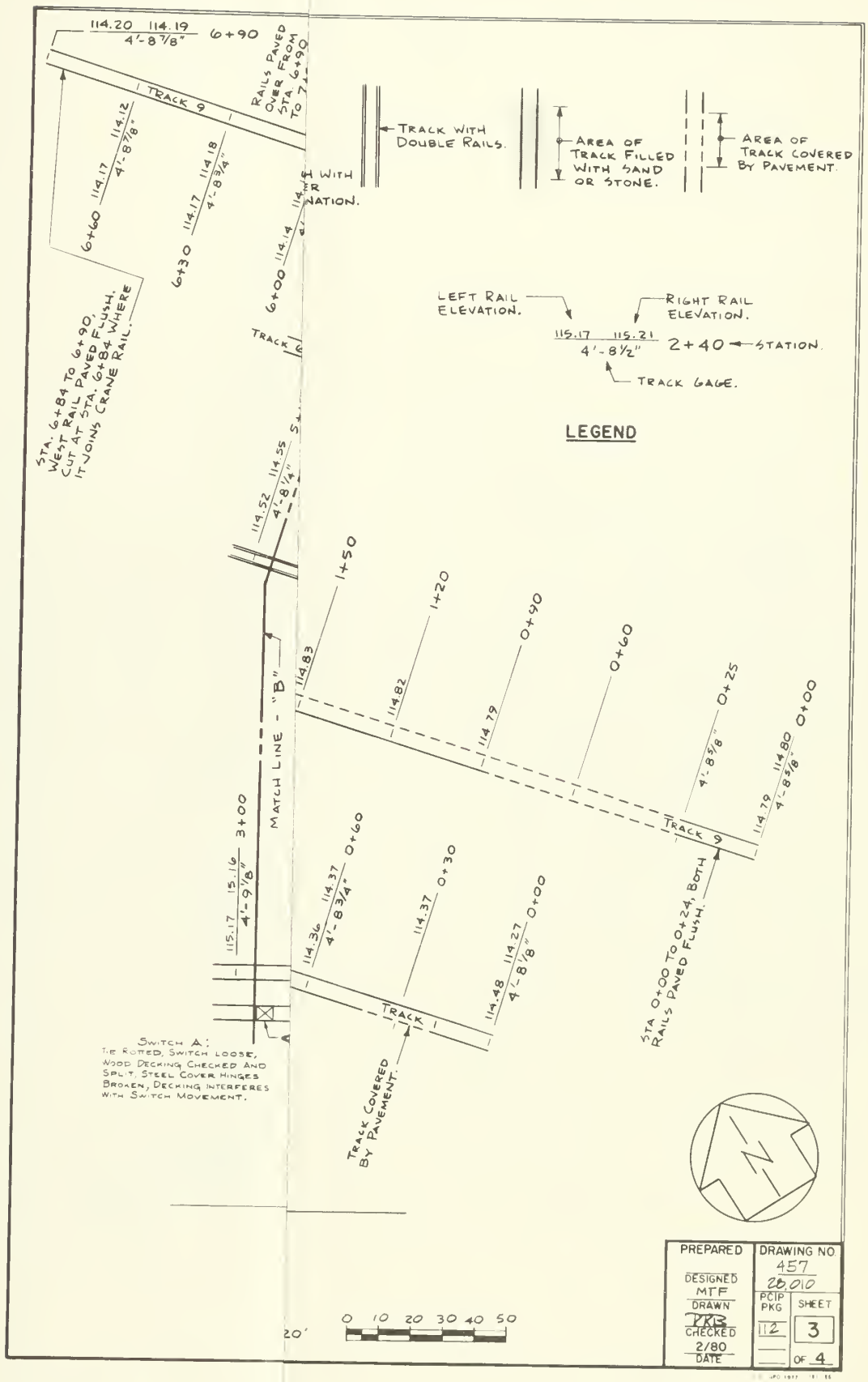
MATCH LINE - "A"

MATCH LINE - "B"

SCALE: 1" = 20'

0 10 20 30 40 50

PREPARED	DRAWING NO. 57
DESIGNED MTF	20010
DRAWN TJB	RCIP PKG — SHEET 2
CHECKED	OF 4
2/80 DATE	



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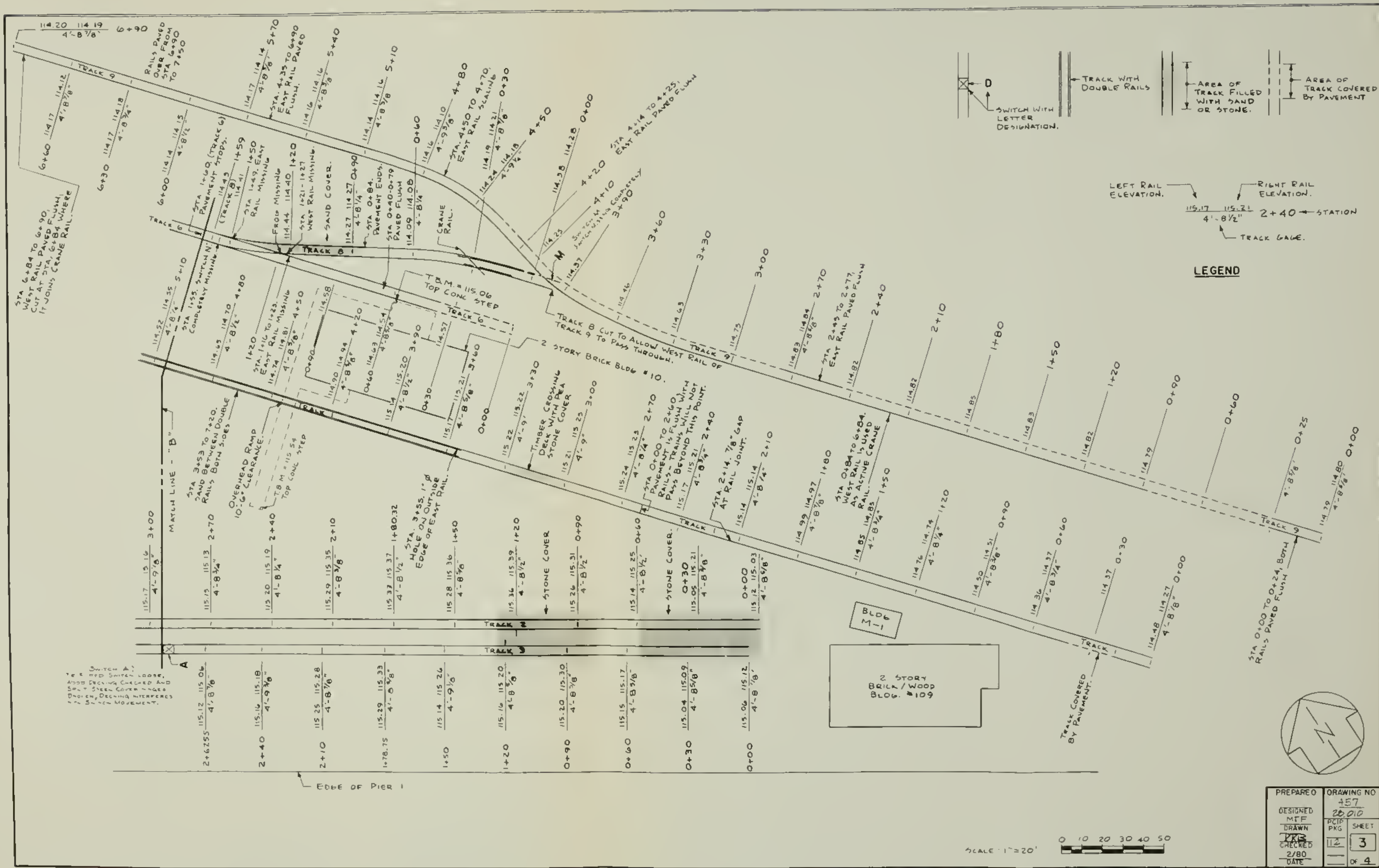
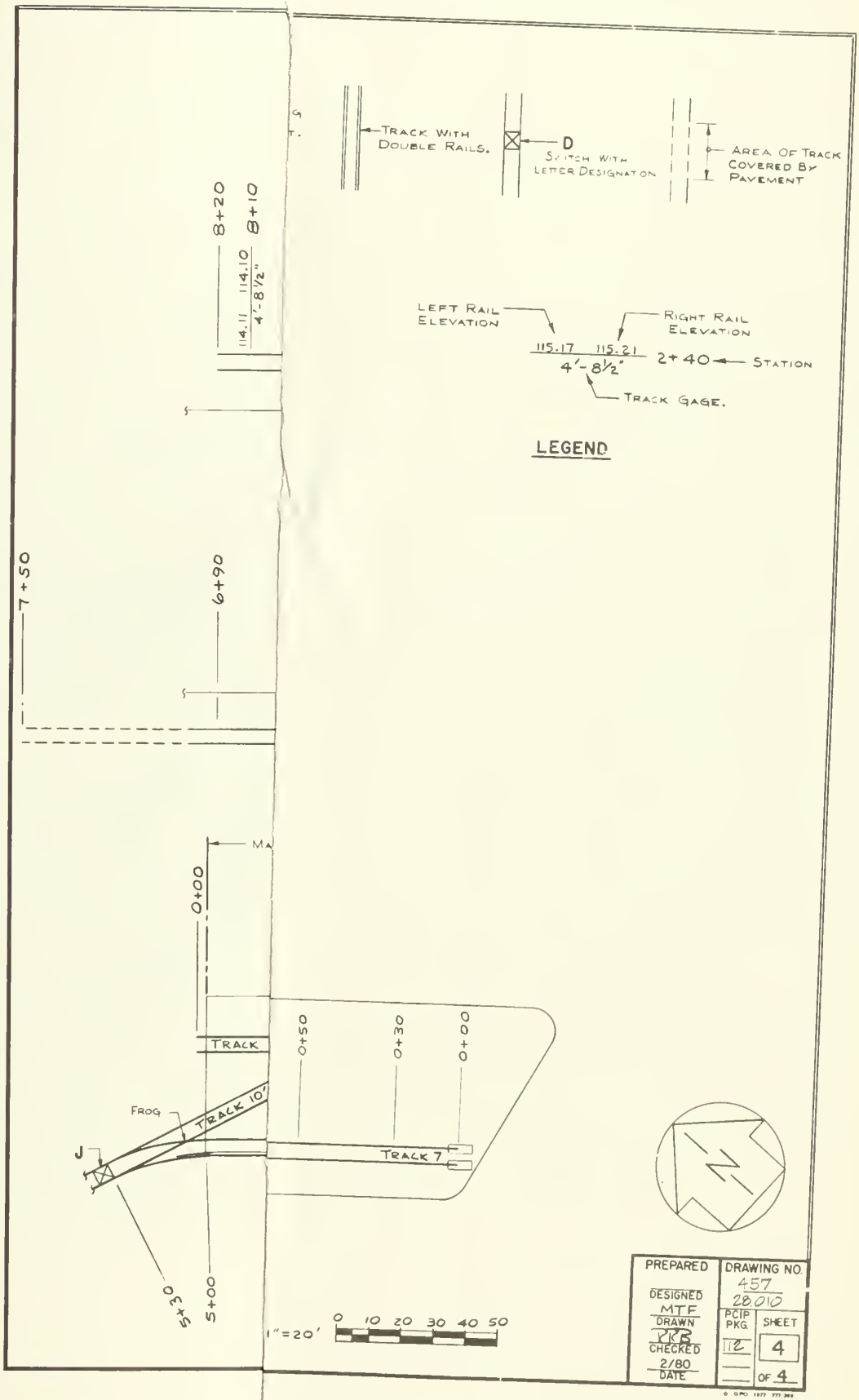
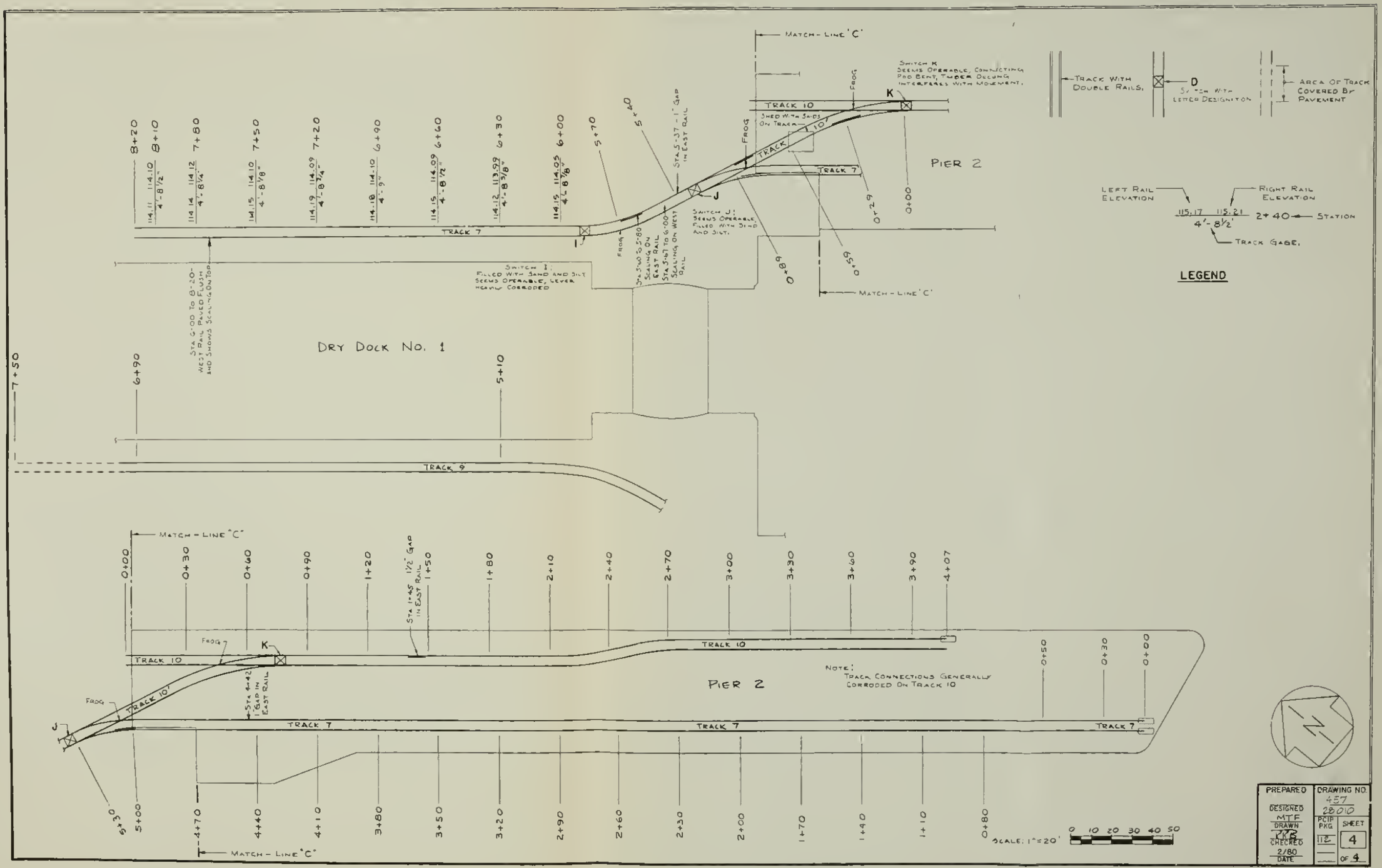
DESIGNED MTF	457 20,010
DRAWN [illegible]	PCIP PKG 112
CHECKED	SHEET 3 OF 4
2/80 DATE	


TRACK 9
TRACK 8
TRACK 6
TRACK 2
TRACK 3
RAIL
LEGEND
SWITCH WITH LETTER DESIGNATION.
TRACK WITH DOUBLE RAILS
AREA OF TRACK FILLED WITH SAND OR STONE.
AREA OF TRACK COVERED BY PAVEMENT
LEFT RAIL ELEVATION.
RIGHT RAIL ELEVATION.
STATION
TRACK GAGE.
T.B.M. = 115.06 TOP CONC STEP
2 STORY BRICK BLDG #10.
TRACK 8 CUT TO ALLOW WEST RAIL OF TRACK 9 TO PASS THROUGH.
MATCH LINE - "B"
BLDG M-1
2 STORY BRICK / WOOD BLDG. #109
EDGE OF PIER 1
TRACK COVERED BY PAVEMENT.
STONE COVER
SCALE 1"=20'
0 10 20 30 40 50
PREPARED
DESIGNED MFF
DRAWN
CHECKED
2/80
DATE
DRAWING NO
457
20,010
PKG
12
SHEET
3
OF 4


TRACK WITH DOUBLE RAILS.
D
SWITCH WITH LETTER DESIGNATION
AREA OF TRACK COVERED BY PAVEMENT
LEFT RAIL ELEVATION
RIGHT RAIL ELEVATION
115.17 115.21
4'-8½"
2+40
STATION
TRACK GAGE.
LEGEND
8+20
8+10
114.11 114.10
4'-8½"
7+50
6+90
M
0+00
TRACK
0+50
0+30
0+00
FROG
TRACK 10'
J
TRACK 7
5+30
5+00
1"=20'
0 10 20 30 40 50
PREPARED
DESIGNED MTF
DRAWN RKB
CHECKED
2/80 DATE
DRAWING NO. 457 28010
PCIP PKG. 12
SHEET 4 OF 4


MATCH-LINE 'C'
TRACK 10
TRACK 7
TRACK 9
PIER 2
DRY DOCK NO. 1
SWITCH K SEEMS OPERABLE, CONNECTING POD BENT, TIMBER DECKING INTERFERES WITH MOVEMENT.
SWITCH J: SEEMS OPERABLE, FILLED WITH SAND AND SILT.
SWITCH I: FILLED WITH SAND AND SILT SEEMS OPERABLE, LEVER HEAVILY CORRODED
SHED WITH SKIDS ON TRACK
FROG
STA 5+37 - 1" GAP IN EAST RAIL
STA 5+40 TO 5+80 SCALING ON EAST RAIL
STA 5+67 TO 6+00 SCALING ON WEST RAIL
STA 6+00 TO 8+20 WEST RAIL PLATED FLUSH AND SHOWS SCALING ON TOP
STA 1+45 1½" GAP IN EAST RAIL
STA 4+42 1" GAP IN EAST RAIL
NOTE: TRACK CONNECTIONS GENERALLY CORRODED ON TRACK 10
TRACK WITH DOUBLE RAILS.
D SWITCH WITH LETTER DESIGNATION
AREA OF TRACK COVERED BY PAVEMENT
LEFT RAIL ELEVATION
RIGHT RAIL ELEVATION
115.17 115.21 2+40 STATION
4'-8½" TRACK GAGE.
LEGEND
SCALE: 1"=20'
0 10 20 30 40 50
PREPARED
DESIGNED MTF
DRAWN JJR
CHECKED
2/80 DATE
DRAWING NO. 457 28010
PCTP PKG 112
SHEET 4 OF 4

ANALYSIS OF EFFECT

Alternative I calls for fixed stock to be trucked in and placed by crane onto final resting locations on existing railroad track. This proposal would have no effect on the resource. This alternative along with the other alternatives (except Alternative V) call for the elimination of pedestrian hazards by adding additional paving to match existing so that all unused trackage would be paved flush. This would not disturb existing resources but would visually alter the appearance of functioning rails and would therefore have an effect on the resource. In addition, Alternatives II through V all call for varying amounts of existing railroad track repair or reconstruction of track previously removed; these proposals would have adverse effects on the resource.

In all alternatives proposed, varying amounts of existing trackage will not undergo replacement, reconstruction, or stabilization. Left as they are it is assumed that railroad ties will continue to deteriorate and consequently will produce an effect on the resource. However the railroad track system is probably best preserved in its present state.

As stated in the general management plan (GMP), the railroad tracks are included in a category of greatest historical significance and are to be preserved at their 1973 appearance. However, the GMP also states that the park will undertake a series of actions to provide for the safety of park visitors. Both directives found in the GMP apply to the railroad tracks and are potentially contradictory. Pedestrian hazards cannot altogether be eliminated when rails are left in their present state. Visitor use of the park may have to be restricted so that visitors cross existing railroad tracks where temporary platforms are installed. This would eliminate the hazards and have no effect on the resource. The alternatives discussed assume that visitor access to the Navy Yard will, for the most part, be unrestricted where railroad tracks exist.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

PACKAGE ESTIMATING DETAIL

REGION	PARK
North Atlantic	Boston National Historical Park
PACKAGE NUMBER	**PACKAGE TITLE**
--	Charlestown Navy Yard - Study of Railroad Track

(If more space is needed, use plain paper and attach)

ITEM	QUANTITY	COST
ALTERNATIVE COST ESTIMATES		
Alternative I		
Do no repairs to existing trackage. Fixed stock to be trucked in and placed by crane onto their final location. Pedestrian hazard removal where possible.	LS	$ 25,000
Alternative IIa		
Repair of Track 3 to allow rolling stock to enter yard to Station 2 + 75 and removal of pedestrian hazards.	LS	$ 32,000
Alternative IIb		
Additional cost to repair Track 3 from Station 0 + 00 to 2 + 75. (Additive to Alternative IIa)	LS	$ 33,000
Alternative IIIa		
Cost to repair tracks 3' and 2 to Station 9 + 00 of Track 2.	LS	$ 58,000

SUMMARY OF CONSTRUCTION ESTIMATES		CLASS OF ESTIMATE A ☐ Working Drawings; B ☐ Preliminary Plans; C ☒ Similar Facilities	
Proj. Type		Totals from Above B & U	R & T
52	Museum Exhibits		XXXXX
55	Wayside Exhibits		XXXXX
62	Audio Visual		XXXXX
89	Ruins Stabilization		XXXXX
91	Construction		
92	Utility Contracts		XXXXX

ESTIMATES APPROVED (Signature)	(title)	(date)

POST PROFESSIONAL SERVICES ESTIMATES AND SCHEDULING ON BACK OF FORM

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

PACKAGE ESTIMATING DETAIL

REGION	PARK
PACKAGE NUMBER	PACKAGE TITLE

(If more space is needed, use plain paper and attach)

ITEM	QUANTITY	COST
Alternative IIIb		
Additional cost to repair track to the Scale House. (Addition to Alternative IIIa)	LS	$ 4,000
Alternative IIIc		
Additional cost to repairs Tracks 1, 4, 5, and 6, to allow their use for rolling stock. (Additive to Alternative IIIa)		
Track 1	LS	$ 11,000
Tracks 4, 5 (Station 2 + 95 to 4 + 36)	LS	$ 6,000
Track 5 (Station 0 + 00 to 2 + 95)	LS	$ 4,000
Track 6	LS	$ 7,000
Alternative IV		
Installation of approximately 400 feet of new track between Track 3 and Track 2. Work includes all excavation, ballast, ties, tracks, switches, and pavement necessary for installation.	LS	$128,000

This estimate is based on a study by Childs Engineering Corporation dated February 1980, estimates have been escalated to February 1982.

Ray Borras, 2/22/82

SUMMARY OF CONSTRUCTION ESTIMATES	CLASS OF ESTIMATE: A ☐ Working Drawings; B ☐ Preliminary Plans; C ☐ Similar Facilities		
Proj. Type		Totals from Above B & U	R & T
52	Museum Exhibits		XXXXX
55	Wayside Exhibits		XXXXX
62	Audio-Visual		XXXXX
89	Ruins Stabilization		XXXXX
91	Construction		
92	Utility Contracts		XXXXX

ESTIMATES APPROVED (Signature)	(title)	(date)

POST PROFESSIONAL SERVICES ESTIMATES AND SCHEDULING ON BACK OF FORM

BIBLIOGRAPHY

Assessment of Alternatives, Charlestown Navy Yard, Boston National Historical Park, Denver Service Center, April 1979.

Draft General Management Plan, Volume I, October 1977, Volume II, February 1980, National Park Service, Denver Service Center.

Cultural Resources Inventory, Potential Archeological Resources, Audrey Marie, March 1980.

Environmental Assessment of Management Alternatives for Boston National Historical Park, National Park Service, Denver Service Center, November 1976, p. 166.

Boundary Enlargement Report, Charlestown Navy Yard, National Park Service, Denver Service Center, December 1978.

As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The Department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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